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ORGAN OF THE CONVENTION OF AMERICAN INSTRUCTORS OF THE DEAF

EDITED BY

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UNDER THE DIRECTION OF

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THE SURVEY OF SCHOOLS FOR THE DEAF—V[1]

PSYCHOLOGICAL SURVEY

The committee of the National Research Council in charge of the survey of schools for the deaf[2] included, among the several tests given, an intelligence test and a standardized educational test. These tests were given by the field agents, who were sent out by the survey committee to gather the required information and to conduct the several tests. This report is based upon an analysis of the results obtained by the intelligence and educational tests.

The Tests.—The tests in question are the Pintner Non-Language Mental Test and the Pintner Educational Survey Test.[3] These tests were designed in the first place specifically for use with deaf children and they have so been used on many occasions. They have also been used extensively with hearing children. The Non-Language Mental Test measures general intelligence. No language is used either in the administration of the test or by the subject taking the test. It is, therefore, eminently suitable for use with deaf children. With hearing children it correlates from .25 to .66 for different grade groups with such verbal tests as the National. Its validity as a measure of ability with an elaborate criterion has been reported by Liu as .78. Its reliability is about .79 for grades 4 to 6.[4] A further study of these tests given to a school for the deaf and repeated after four years shows

[1]Continued from the January, 1927, issue of the *Annals*, pp. 2-34.
[2]*Annals*, November, 1925 (vol. lx, no. 5), p. 391 f.
[3]For a full description and reproduction of these tests, see Reamer, J. C. "Mental and Educational Measurements of the Deaf," Psychological Monograph No. 132, Psychological Review Co., Princeton, N. J., 1921. The tests themselves are published and sold by the College Book Company, Columbus, Ohio.
[4]See Pintner, R., "Results Obtained with the Non-Language Group Test," *Journal of Educational Psychology*, November, 1924 (vol. xv, no. 8), pp. 473-483.

a correlation of .80 for both the mental and educational indices after a period of four years.[5] This means that these indices are probably fairly stable.

The Educational Survey Test[6] was constructed from standard educational tests in use in hearing schools. It attempts to give a general all-around measure of the basic elements in school, such as reading, arithmetic, and the like. The stability of the indices of this educational test in one school for the deaf has been pointed out above.

Furthermore, these two tests, the mental and educational, have been standardized together on the same group of children, both in the case of the hearing and the deaf. This is very important in dealing with differences between educational and mental indices. The standardization group for both tests is the same.[7] There is, therefore, no danger of error being made by having one test standardized on a better group than the other and thus leading one into erroneous conclusions as to the amount of educational achievement to be expected from a given amount of mental ability.

The Children Tested.—The survey workers decided to limit the number of children to be given psychological tests for two reasons; (1) the lack of time and assistants to give every child a test, (2) the impossibility of using the tests under discussion with immature children. It was decided, therefore, to test all children aged twelve and above in all schools, regardless of the grades in which a school for the deaf and repeated after four years shows they might be found. Table 1 shows the number of children tested. The children are arranged according to age

[5]Pintner, R., "Group Tests after Several Years," *Journal of Educational Psychology*, September, 1925 (vol. xvi, no. 6), pp. 391-395.

[6]The construction of this test is described by Pintner, R., and Fitzgerald, F., in "An Educational Survey Test," *Journal of Educational Psychology*, April, 1920 (vol. xi, no. 4), pp. 207-223.

[7]For detailed description of the standardization see Pintner, R., and Marshall, H., "A Combined Mental-Educational Survey," *Journal of Educational Psychology*, January, 1921, and February, 1921 (vol. xii, no. 1), pp. 32-43 and pp. 82-91.

TABLE I

Distribution of Cases Tested

Schools	Ages																Totals
	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	30	
D-1	6	11	7	11	8	2	2	...	...	...	...	...	...	...	...	...	47
D-2	6	4	5	4	5	4	4	1	1	...	...	...	...	...	...	...	34
D-3	17	14	14	11	6	3	2	...	...	...	...	...	...	...	...	...	67
D-4	2	2	1	...	1	3	...	...	...	...	...	...	...	...	...	...	9
D-5	3	3	...	5	2	1	...	1	...	...	...	...	...	...	...	...	15
D-6	5	10	7	3	3	...	...	...	...	...	...	...	...	...	...	...	28
D-7	12	18	15	8	13	2	2	5	1	...	...	...	...	...	...	...	76
D-8	5	7	5	5	4	3	...	...	1	...	...	...	...	...	...	...	30
D-9	10	7	10	7	27	1	...	1	1	...	...	...	...	...	...	...	64
D-10	14	12	11	7	7	5	3	2	...	...	...	...	...	...	...	...	61
D-11	2	3	...	1	4	1	...	...	...	...	...	...	...	...	...	...	11
D-12	35	47	36	38	...	10	1	3	2	1	...	...	...	...	...	...	173
D-13	...	...	...	1	...	1	2	...	...	...	...	...	...	...	...	...	4
Totals	117	138	111	101	80	36	16	13	6	1	...	...	...	...	...	...	619
R-1	23	20	16	14	20	11	12	6	6	3	3	1	...	...	...	...	135
R-2	6	8	14	10	11	18	6	5	2	...	...	...	...	...	...	...	80
R-3	6	9	42	18	14	...	8	...	9	6	...	1	2	...	...	...	115
R-4	12	11	16	19	12	16	14	6	2	1	...	...	...	...	...	...	109
R-5	13	7	8	18	10	11	7	8	8	4	1	...	...	...	...	...	95
R-6	29	31	21	18	29	19	16	16	4	5	3	...	...	...	...	...	191
R-7	...	...	5	1	2	6	11	15	23	24	39	...	...	...	...	...	126
R-8	19	20	20	20	23	16	16	10	4	3	5	1	1	...	...	...	158
R-9	6	3	5	6	2	4	1	2	1	...	...	...	...	...	...	...	30
R-10	23	25	29	19	25	22	15	8	15	3	4	...	...	...	1	...	189
R-11	19	23	23	14	14	10	11	4	...	...	...	...	...	...	...	...	118
R-12	18	11	9	6	6	8	5	6	11	...	...	...	...	...	...	...	80
R-13	14	19	27	25	24	23	19	16	15	4	2	2	2	2	...	...	194
R-14	29	36	41	43	43	25	29	24	9	5	2	...	...	...	...	...	286
R-15	16	12	8	11	14	13	13	12	2	4	...	...	...	...	...	...	105
R-16	8	18	7	14	17	11	6	7	1	1	...	...	...	...	...	...	90
R-17	21	17	18	35	25	17	16	10	12	3	...	...	...	...	...	...	174
R-18	28	33	47	33	48	41	14	18	13	3	...	...	1	...	...	...	279
R-19	6	6	6	12	9	10	5	8	3	5	1	...	...	...	...	...	71
R-20	7	12	19	8	23	7	4	8	2	1	...	...	...	...	...	...	91
R-21	8	16	9	14	10	9	11	7	1	2	1	1	3	...	...	...	92
R-22	22	26	25	21	26	22	10	7	...	...	...	...	...	...	...	...	159
R-23	20	11	12	9	11	6	7	2	2	...	...	...	...	...	...	...	80
R-24	25	42	87	37	37	29	23	14	30	9	4	1	...	2	...	1	341
R-25	9	7	7	10	8	14	5	6	6	5	...	2	...	...	...	...	79
R-26	10	14	11	20	35	5	7	10	5	1	...	...	...	...	...	...	118
R-27	5	11	3	10	12	5	7	9	1	...	...	...	...	...	...	...	63
R-28	28	22	32	24	14	15	12	7	6	4	1	...	...	...	...	...	165
Totals	430	470	567	489	524	393	310	251	193	96	66	9	9	4	1	1	3,813
Grand Totals	547	608	678	590	604	429	326	264	199	97	66	9	9	4	1	1	4,432

and according to school. The schools are, furthermore, divided into day and residential schools. D-1, D-2, etc., are the designations for the day-schools; R-1, R-2, etc., for the residential. Thirteen day-schools contributed 619 children; twenty-eight residential schools contributed 3,813 children, making a total of forty-one schools and 4,432 children.

Geographical Distribution.—The geographical distribution of the children tested is shown in Table 2. This table also contains a comparison with the total number of deaf persons in the United States as reported by the last census of the deaf, made in 1920.[8] Roughly one-tenth

TABLE 2

Comparison of Deaf Sampling With Census

1920 Census			This Study	
Geographic Division	No.	Per cent	No.	Per cent
United States	44,885	99.9	4,432	100.0
New England	3,093	6.9	156	3.5
Middle Atlantic	8,361	18.6	1,426	32.2
East North Central	10,770	24.0	488	11.0
West North Central	5,812	12.9	506	11.4
South Atlantic	5,946	13.2	540	12.2
East South Central	3,745	8.3	404	9.1
West South Central	3,902	8.7	456	10.3
Mountain	1,211	2.7	174	3.9
Pacific	2,045	4.6	282	6.4

of the probable number of deaf individuals in the United States was included in the testing program of the survey. What percentage our population of 4,432 children is of the total population of deaf persons between the ages of 12 and 20 or 25 is difficult to determine. It is certainly greater than 10 per cent and probably somewhere between 25 and 50 per cent. We may therefore say that from a quarter to a half of the deaf children between the ages of 12 and 20 were included in this psychological survey.

From Table 2 we learn further that the geographical distribution of the children tested is roughly the same as the geographical distribution of the total number of the deaf in the United States. The percentages are small

[8] "Deaf-Mutes in the United States: 1920." Bureau of the Census, Department of Commerce, Washington, 1923.

in both cases for New England, Mountain and Pacific, and medium for West North Central, South Atlantic, East South Central and West South Central. The greatest discrepancies are for the Middle Atlantic Section which contains a larger percentage of children tested, and for the East North Central which contains a much smaller percentage of children tested, as compared with the total distribution. On the whole, however, we may say that the children tested are probably very typical of deaf children in the United States.

Age Distribution of Children Tested.—Children generally enter schools for the deaf between the ages of 6 and 9, (except of course in the case of those who become deaf in later life). The number becoming deaf after 9 or 10 is negligible, as will be seen further on in this report. We should expect, therefore, a gradual decrease in numbers from about age 7 or 8 up to the later years, just as we find in schools for the hearing. As the children grow older, greater numbers tend to drop out for many reasons.

Table 1 shows the number tested at each age from 12 upwards. Examining the last row of this table which gives the total number of children tested at each age, we note that the peak occurs at age 14. From this age on there is an almost steady decline, as we would expect. The customary expectation would have been to see the peak at age 12. There is no obvious explanation of the smaller number of children aged 12 and 13, except the probability that not all of the children of those ages were available for the tests. Although the surveyors planned to test all 12-year-old children, the chances are that this aim was not absolutely achieved. We may assume that some 12-year-olds, and to a lesser extent some 13-year-olds, were not included in the testing because they were in very elementary grades and were not deemed capable of taking the tests. On this assumption the 12-year-olds that remain may be slightly superior to a complete distribution of children of that age.

The ages of the children in Table 1 are also instructive from an educational point of view, inasmuch as we note that decided elimination does not set in until after age 17 or 18, whereas with hearing children the greatest elimination takes place after ages 14 or 15. The deaf child probably enters school a little later than the hearing, but he more than makes up for it by staying several years longer. The educator of the deaf has a longer period than the educator of the hearing during which he can influence the development of his pupils. This does not mean that he has a better chance to influence this development. If the child is more plastic, more modifiable in early life, then the teacher of the deaf is deprived of more of the modifiable early years of the child's life, than is the teacher of hearing children. A careful experiment should be made of the development of deaf children according to their age at entering school. Nursery schools for deaf children of pre-school age might be useful.

The residential schools tend to keep their pupils much longer than the day-schools. Only one pupil above twenty was found in a day-school, whereas there are many pupils in the twenties in residential schools. A more minute study of the age distribution of particular schools will show marked individual differences. In some schools the assumption seems fair that all 12-year-olds were not examined. Examine the distribution of ages in R-20, R-18, R-14, and R-24.[9]

The Establishment of Norms.—After the tests were scored, age percentile tables were constructed.[10] These percentile tables show the scores made by progressive five per cents from the child scoring lowest to the child

[9]At the time of the visit of the field agents to R-14, the children of the primary department in that school were in quarantine for diphtheria, and so quite a number of 12-year-olds were not included in the tests.—Ed. *Annals.*

[10]This work was done by Prof. Irving S. Fusfeld of Gallaudet College, and the writer of this report is greatly indebted to him for this work.

scoring highest at each age. The percentile score can then be turned into an index, which is a rating in terms of the standard deviation on the assumption of a normal distribution. The index corrects the discrepancy of the percentile distribution occasioned by the piling up of cases around the median and the scattering of cases at the upper and the lower end. Differences between educational and mental percentiles would not be comparable, but differences between educational and mental indices are comparable.

This method of establishing indices was followed so that comparison might then be made with the previous survey by Reamer. Table 3 gives the percentiles for the

TABLE 3

Percentile Scores for the Non-Language Test
All Deaf Children Within Each Age Group

Per centile	Age									
	12	13	14	15	16	17	18	19	20	21+
100	495	565	607	590	572	581	573	595	577	575
99	481	508	506	549	558	559	552	580	565	563
95	425	451	476	492	509	523	532	544	541	540
90	390	416	442	458	478	502	512	516	504	518
85	375	395	422	436	453	486	489	498	472	498
80	358	374	410	416	439	465	475	484	450	483
75	340	358	392	399	425	450	461	472	431	466
70	327	338	375	384	408	435	446	452	410	442
65	306	325	355	373	394	422	425	436	400	427
60	292	309	339	361	377	403	415	417	386	413
55	277	297	325	348	361	389	397	404	375	394
50	265	286	307	336	348	375	384	385	359	377
45	250	270	294	325	332	361	359	371	341	351
40	231	256	277	309	316	342	347	359	324	344
35	215	240	261	297	301	324	326	342	304	337
30	203	222	244	277	281	305	313	324	288	321
25	190	198	229	253	253	282	290	303	270	299
20	162	176	206	225	225	258	267	290	257	271
15	145	153	179	193	197	237	242	264	208	245
10	111	118	147	147	160	197	187	237	171	229
5	76	67	95	87	107	149	141	163	109	165
1	0	22	32	24	28	31	14	65	42	33
0	0	6	0	0	4	0	0	6	38	30

TABLE 4

Percentile Scores for the Educational Test
All Deaf Children Within Each Age Group

Per-centile	Age									
	12	13	14	15	16	17	18	19	20	21+
100	93	99.5	98.5	90	102	115	100	102	106	121
99	75	76	83.5	87	92	100.5	97	101.5	103.5	109
95	44	53	58	68	75	81	81	91.5	100	105
90	32	40	47	59.5	63	70	73	79.5	93	99
85	26	32	40	49.5	55	63.5	67	69	90	95
80	23	29	34	44	51	57.5	64	61.5	87.5	92
75	21	26	31	39	45	52	56.5	58	86	89.5
70	18	23	27	36	40	47.5	53	53	79.5	81
65	16	21	25	33	37	42	48	50	79	79.5
60	14	19	22	31	34	40	46	49	73	74.5
55	12	17	20	29	32	36	40	46	68.5	72
50	11	15	19	28	31	34	36	43	66	68
45	10	13	16	25	29	32	32	41	49	64
40	9	11	14	23	26	29	31	38	44	60.5
35	8	10	13	21	24	28	30	34	41	55
30	6	8	11	20	21	26	29	30	38	44.5
25	6	7	9	17	19	25	27	27	35	37
20	4	5	7	14	17	22	25	20	34	25.5
15	3	4	5	12	15	20	21	17	33	22
10	2	2	4	10	12	13	14	11	31	14
5	1	1	2	6	6	10	12	8	28	6
1	0	0	0	1	2	3	8	4	18	0
0	0	0	0	0	2	0	8	4	18	0

Non-Language Test and Table 4 for the Educational Test.[11] Table 5 gives the required information for converting percentiles into indices. For a more detailed account of the method, the reader must be referred to the Reamer report.[12] It is sufficient for the general reader to bear in mind that all indices make a comparison of a

[11]Table 4 for the educational test shows the percentile values calculated by Fusfeld for ages 12, 13 and 14. The values for the other ages have been taken from the Reamer Survey. There did not seem to be sufficient difference in these upper ages, containing relatively few cases, to warrant the time and expense required to re-calculate these percentile values.

[12]Reamer, J. C., "Mental and Educational Measurements of the Deaf." Psychological Monograph No. 132, Psychological Review Co., Princeton, N. J., 1921, p. 130.

TABLE 5

Table for the Conversion of Percentiles into Indices

P.	I.	P.	I.	P.	I.	P.	I.
1	10	26	40	51	50	76	60
2	18	27	41	52	51	77	61
3	21	28	41	53	51	78	61
4	23	29	42	54	51	79	62
5	25	30	42	55	52	80	62
6	26	31	42	56	52	81	63
7	28	32	43	57	52	82	63
8	29	33	43	58	53	83	64
9	30	34	44	59	53	84	64
10	31	35	44	60	54	85	65
11	31	36	45	61	54	86	66
12	32	37	45	62	54	87	66
13	33	38	45	63	55	88	67
14	34	39	46	64	55	89	68
15	34	40	46	65	55	90	69
16	35	41	46	66	56	91	69
17	36	42	47	67	56	92	70
18	36	43	47	68	57	93	71
19	37	44	48	69	57	94	72
20	37	45	48	70	58	95	74
21	38	46	48	71	58	96	75
22	38	47	49	72	58	97	77
23	39	48	49	73	59	98	79
24	39	49	49	74	59	99	82
25	40	50	50	75	60	100	90

P.—Percentile. I.—Index.

particular deaf child with the total group of deaf tested at his age. An index of 50 means an average deaf child for the age in question. The index is like the Intelligence Quotient a relative measure, relative to the particular age of the individual.

The meaning of these indices is set forth below:

Indices Between	Educational	Mental	Percentage
0-19	very poor	dull	2.2
20-39	poor	backward	22.8
40-59	average	normal	50.0
60-79	good	bright	22.8
80-100	very good	very bright	2.2

If a child has an educational index between 40 and 59, we say he is doing average educational work for his age, or in other words he belongs among the middle fifty per cent of children of that age. If his mental index is between 60 and 79, he is mentally bright, i. e., belongs to the upper 23 per cent of the children, and so on.

The difference between these indices shows us the relation between the mental ability and educational attainment of the child. A plus difference shows that the child is doing better work than children of his mentality usually accomplish. Such children are doing well—better than average—regardless of what their educational index may be. A minus difference shows that a child is not doing as good work educationally as he is capable of doing as judged by his mentality. Differences from + 8 through 0 to — 8 are probably not very significant. Fifty per cent of our class fall between these two points. All children with minus differences greater than — 8 should be carefully studied to see why they are not doing work more nearly commensurate with their ability. They may be very bright or normal or dull children mentally, but they are all alike in that they are not working up to capacity. The reasons for this may be laziness, lack of interest, poor teaching, grade misplacement, lack of stimulus at home, and the like. These are the cases where we have wasted intelligence.

Comparison of Schools.—The data for each school were tabulated according to the mental and educational indices and the ages of the pupils.[13] The median ratings in each age for both the mental and educational tests are consolidated for the whole group of schools visited in Table 6, and also the number of cases on which each median is based. In addition to this table, Tables 7 and 8

[13]These basic tables, giving the details of the psychological examinations, are not reproduced in this report as printed, but mimeographed copies of these tables will be sent upon request (addressed to the National Research Council, B and 21st Streets, Washington, D. C.) to anyone desiring them.

TABLE 6

Summary of Median Mental and Educationa

Median Indices of Mental Tests																																School	
12 Yrs.		13 Yrs.		14 Yrs.		15 Yrs.		16 Yrs.		17 Yrs.		18 Yrs.		19 Yrs.		20 Yrs.		21 Yrs.		22 Yrs.		23 Yrs.		24 Yrs.		25 Yrs.		Totals					
Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Day	Med.
44	6	48.5	11	57.5	7	57.5	11	65.5	8	58	2	48	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55	47	D-1	48
53	6	60.5	4	53	5	55.5	4	55	5	65.5	4	58	4	63	1	53	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	57.5	34	D-2	50
52.5	17	62.5	14	58.3	14	65	11	53	6	45	3	35.5	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	57	67	D-3	58
65.5	2	70.5	2	73	1	.....	.....	48	1	48	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	59	9	D-4	58
48	3	68	3	.....	.....	53	5	30.5	2	48	1	.....	.....	23	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50	15	D-5	48
35	5	50.5	10	58	7	63	3	55	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	53.3	28	D-6	55
53	12	50.5	18	55	15	50.5	8	57.6	13	50.5	2	35.5	2	43	5	0	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52.5	76	D-7	49
58	5	62.5	7	58	5	68	5	55.5	4	58	3	.....	.....	.....	.....	28	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58.5	30	D-8	59
52	10	63	7	53	10	44	7	48	27	33	1	.....	.....	48	1	43	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	48.6	64	D-9	56
62	14	53	12	53	11	48	7	58	7	62	5	73	3	53	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58	61	D-10	58
50.5	2	43	3	.....	.....	48	1	58	4	48	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52	11	D-11	62
58.1	35	53	47	57	36	49.5	38	.....	.....	43	10	33	1	33	3	35.5	2	48	1	.....	.....	.....	.....	.....	.....	.....	.....	53	173	D-12	61
.....	.....	.....	.....	.....	.....	53	1	.....	.....	53	1	53	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	53	4	D-13	38
																														Resi-dential	
48.3	23	41.2	20	45.5	16	55.5	14	45.5	20	45	11	40.5	12	40.5	6	30	6	38	3	33	3	38	1	.....	.....	.....	.....	43.5	135	R-1	41
50.5	6	45.5	8	55.5	14	53	10	50	11	48.3	18	48.3	6	37.6	5	20.5	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	49.3	80	R-2	52
40.5	6	40	9	43.3	42	42	18	46.6	14	.....	.....	45.5	8	.....	.....	47	9	33	6	.....	.....	43	1	43	2	.....	.....	43.2	115	R-3	39
53.3	12	51.2	11	50.5	16	57.5	19	47.5	12	50.5	16	44.5	14	50.5	6	45.5	2	48	1	.....	.....	.....	.....	.....	.....	.....	.....	50	109	R-4	47
46.6	13	58	7	58	8	50.5	18	58	10	52	11	55	7	43	8	18	8	40.5	4	33	1	.....	.....	.....	.....	.....	.....	50	95	R-5	51
44	29	51.6	31	58	21	48	18	52.6	29	57.5	19	58	16	62	16	48.3	4	53	5	38	3	.....	.....	.....	.....	.....	.....	54.3	191	R-6	47
.....	.....	.....	.....	67.5	5	88.5	1	60.5	2	60.5	6	67.5	11	58	15	49	23	59.5	24	50	39	.....	.....	.....	.....	.....	.....	57.5	126	R-7	58
53	19	50.5	20	55.5	20	50.5	20	45	23	45.5	16	51.6	16	53	10	50.5	4	48	3	35	5	33	1	33	1	.....	.....	49.3	158	R-8	48
55.5	6	53	3	53	5	68	6	70.5	2	58	4	0	1	38	2	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55.5	30	R-9	49
40	23	47	25	42	29	32.5	19	38.3	25	48.5	22	36.3	15	40.5	8	38	15	37	3	33	4	.....	.....	.....	.....	.....	.....	39.3	189	R-10*	41
54	19	50	23	58.5	23	60.5	14	60.5	14	68	10	61.6	11	50.5	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58.3	118	R-11	58
50.5	18	38	11	55	9	45.5	6	50.5	6	45.5	8	38	5	38	6	33	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43.3	80	R-12	42
43	14	42	19	51.5	27	52.5	25	54	24	43	23	51.5	19	53	16	48	15	43	4	40.5	2	25.5	2	45.5	2	33	2	48.4	194	R-13	46
57	29	55.5	36	50	41	53.5	43	54.5	43	52.5	25	50	29	54	24	47.6	9	43	5	45.5	2	.....	.....	.....	.....	.....	.....	52.6	286	R-14	51
45.5	16	43	12	45.5	8	55	11	45.5	14	56.6	13	48	13	48	12	38	2	45.5	4	.....	.....	.....	.....	.....	.....	.....	.....	47.2	105	R-15	43
53	8	48	18	53	7	53	14	48	17	50.5	11	65.5	6	45.5	7	43	1	38	1	.....	.....	.....	.....	.....	.....	.....	.....	52.8	90	R-16	47
43.5	21	47.3	17	43	18	48	35	46.5	25	44.5	17	47	16	45.5	10	45.5	12	53	3	.....	.....	.....	.....	.....	.....	.....	.....	46.5	174	R-17	46
43	28	53	33	48	47	48	33	44.5	48	49	41	45.5	14	51.6	18	39	13	48	3	.....	.....	.....	.....	0	1	.....	.....	47.5	279	R-18	48
50.5	6	58	6	55.5	6	55.5	12	48	9	50.5	10	52.5	5	50.5	8	45	3	43	5	33	1	.....	.....	.....	.....	.....	.....	51	71	R-19	45
37.5	7	55.5	12	49	19	43	8	49	23	43	7	48	4	52.2	8	58	2	38	1	.....	.....	.....	.....	.....	.....	.....	.....	47	91	R-20	57
25.5	8	39	16	40	9	45.5	14	40.5	10	47	9	45	11	42	7	33	1	30.5	2	33	1	23	1	31.5	3	.....	.....	38	92	R-21	38
43	22	55.5	26	48	25	47.6	21	48	26	48.3	22	43	10	48	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	48.2	159	R-22	52
58.5	20	63	11	60.5	12	58	9	50	11	45.5	6	44	7	58	2	50.5	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55.5	80	R-23	54
43	25	43	42	43	87	44	37	44	37	40	29	50	23	38.5	14	40.5	30	38	9	48	4	33	1	.....	.....	28	2	42.2	341	R-24†	37
52.5	9	53.3	7	55	7	54	10	45.5	8	49	14	42.5	5	53	6	40.5	6	48	5	.....	.....	30.5	2	.....	.....	.....	.....	51	79	R-25	46
50.5	10	48	14	52	11	49	20	50	35	40	5	40	7	55.5	10	38	5	48	1	.....	.....	.....	.....	.....	.....	.....	.....	50	118	R-26	42
42.5	5	62.5	11	48	3	53	10	63	12	68	5	47.5	7	50	9	68	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	53.5	63	R-27	46
48.5	28	43	22	43	32	38.3	24	38.3	14	45	15	53.3	12	45	7	33	6	40.5	4	33	1	.....	.....	.....	.....	.....	.....	43.5	165	R-28	43

* The totals for R-10 include one 26-year-old pupil, mental index 33, educational index 0.

† The totals for R-24 include one 30-year-old pupil, mental ind

TABLE 6

and Educational Indices for All Schools Visited

als	School	Median Indices of Educational Tests																													
		Totals		12 Yrs.		13 Yrs.		14 Yrs.		15 Yrs.		16 Yrs.		17 Yrs.		18 Yrs.		19 Yrs.		20 Yrs.		21 Yrs.		22 Yrs.		23 Yrs.		24 Yrs.		25 Yrs.	
No.	Day	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.	Med.	No.
47	D-1	48.3	47	43	6	52.5	11	53	7	43	11	49	8	58	2	33	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....
34	D-2	50.5	34	48	6	48	4	48	5	38	4	53	5	63	4	30.5	4	58	1	33	1	....	....	....	....	....	....	....	....	....	....
67	D-3	58.5	67	63	17	60.5	14	60.5	14	58	11	50.5	6	63	3	20.5	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....
9	D-4	58	9	63	2	60.5	2	83	1	....	....	43	1	47.3	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
15	D-5	48	15	53	3	45	3	....	....	48	5	43	2	48	1	....	....	0	1	....	....	....	....	....	....	....	....	....	....	....	....
28	D-6	55.5	28	53	5	50.5	10	57.5	7	58	3	63	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
76	D-7	49.1	76	50.5	12	55.5	18	57.6	15	48	8	49	13	48	2	48	2	38	5	0	1	....	....	....	....	....	....	....	....	....	....
30	D-8	59.5	30	65	5	57.5	7	65	5	63	5	57.4	4	60	3	....	....	....	....	43	1	....	....	....	....	....	....	....	....	....	....
64	D-9	56	64	45.5	10	62	7	58	10	68	7	54	27	48	1	....	....	43	1	43	1	....	....	....	....	....	....	....	....	....	....
61	D-10	58	61	64	14	53	12	50	11	60	7	58	7	58	5	68	3	53	2	....	....	....	....	....	....	....	....	....	....	....	....
11	D-11	62	11	55.5	2	53	3	....	....	73	1	60.5	4	48	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
173	D-12	61.2	173	63.5	35	63.5	47	68.5	36	58	38	....	....	50.5	10	53	1	33	3	13	2	43	1	....	....	....	....	....	....	....	....
4	D-13	38	4	....	....	....	....	....	....	33	1	....	....	48	1	30.5	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	Residential																														
135	R-1	41.4	135	41.5	23	43	20	48	16	48	14	38.3	20	40	11	46.6	12	50.5	6	35.5	6	33	3	40	3	38	1	....	....	....	....
80	R-2	52.6	80	58	6	59	8	54	14	48	10	50	11	53	18	40.5	6	42.6	5	23	2	....	....	....	....	....	....	....	....	....	....
115	R-3	39	115	35.5	6	43	9	43.5	42	49	18	38	14	....	....	28.5	8	....	....	42	9	34	6	....	....	33	1	38	2	....	....
109	R-4	47.5	109	51.5	12	50	11	47.5	16	55	19	40.5	12	38	16	51.5	14	48	6	38	2	43	1	....	....	....	....	....	....	....	....
95	R-5	51.5	95	56.2	13	58	7	53	8	47.5	18	61.6	10	58	11	57.5	7	43	8	37.5	8	40.5	4	43	1	....	....	....	....	....	....
191	R-6	47.2	191	46	29	47	31	48	21	38	18	48.5	29	50.5	19	48.5	16	53	16	48.5	4	41	5	38.5	3	....	....	....	....	....	....
126	R-7	58.5	126	....	....	....	....	58	5	88	1	75.5	2	75.5	6	70	11	72.6	15	61.5	23	53.3	24	53.3	29	....	....	....	....	....	....
158	R-8	48.2	158	50	19	55.5	20	51.6	20	43	20	48	23	55.5	16	58	16	50.5	10	46.6	4	38	3	33	5	58	1	23	1	....	....
30	R-9	49.2	30	45.5	6	44.6	3	61.6	5	63	6	53	2	50.5	4	0	1	38	2	48	1	....	....	....	....	....	....	....	....	....	....
189	R-10*	41.6	189	45	23	45	25	46.3	29	30	19	37	25	52	22	36.6	15	38	8	26.6	15	37	3	35.5	4	....	....	....	....	....	....
118	R-11	58	118	55	19	53	23	58	23	60	14	57	14	63	10	54	11	48	4	....	....	....	....	....	....	....	....	....	....	....	....
80	R-12	42	80	45.5	18	43	11	48	9	43.3	6	43	6	40.5	8	43	5	35.5	6	18	11	....	....	....	....	....	....	....	....	....	....
194	R-13	46.8	194	43	14	41.5	19	51	27	55	25	50.5	24	41.6	23	51.6	19	53	16	45	15	43	4	33	2	33	2	35.5	2	33	2
286	R-14	51.5	286	52.5	29	53.5	36	52	41	49.5	43	50	43	55	25	54	29	54.5	24	48	9	48.5	5	40.5	2	....	....	....	....	....	....
105	R-15	43.5	105	47.5	16	40.5	12	47.5	8	40	11	38	14	52	13	43	13	40.5	12	23	2	40.5	4	....	....	....	....	....	....	....	....
90	R-16	47	90	50.5	8	42	18	53	7	44	14	44	17	50	11	51.5	6	44	7	33	1	43	1	....	....	....	....	....	....	....	....
174	R-17	46.5	174	49	21	46	17	43.5	18	43.5	35	48	25	43	17	53	16	52	10	43	12	43	3	....	....	....	....	....	....	....	....
279	R-18	48	279	50.5	28	52.5	33	51.5	47	43.5	33	47	48	51	41	53	14	47.5	18	33	13	28	3	....	....	....	....	0	1	....	....
71	R-19	45	71	48	6	63	6	48	6	45.5	12	43	9	45.5	10	40	5	53	8	38	3	36.6	5	28	1	....	....	....	....	....	....
91	R-20	57.1	91	59	7	60.5	12	57	19	38	8	55	23	43	7	48	4	60.5	8	45.5	2	43	1	....	....	....	....	....	....	....	....
92	R-21	38	92	32.5	8	42.5	16	43	9	40.5	14	33	10	35	9	37	11	38	7	8	1	33	2	38	1	28	1	38	3	....	....
159	R-22	52.6	159	59	22	55.5	26	56.5	25	48.2	21	48.6	26	57.5	22	54	10	49	7	....	....	....	....	....	....	....	....	....	....	....	....
80	R-23	54	80	55.5	20	53	11	65.5	12	50	9	58	11	43	6	53	7	50.5	2	48	2	....	....	....	....	....	....	....	....	....	....
341	R-24†	37.8	341	39	25	39.5	42	40.2	87	38.5	37	40	37	42	29	52	23	35.5	14	18.5	30	35	9	30.5	4	38	1	....	....	35.5	2
79	R-25	46	79	48.5	9	53	7	52.5	7	43	10	43	8	47	14	35	5	48	6	30.5	6	45	5	....	....	35.5	2	....	....	....	....
118	R-26	42.5	118	44	10	42	14	50	11	34	20	42	35	38	5	38	7	67	10	10.5	5	38	1	....	....	....	....	....	....	....	....
63	R-27	46	63	38	5	47.5	11	57	3	42	10	44	12	65	5	48	7	51.6	9	53	1	....	....	....	....	....	....	....	....	....	....
165	R-28	43.5	165	46.5	28	43	22	47.6	32	39	24	40.5	14	45	15	40.5	12	43	7	23.8	6	38.5	4	33	1	....	....	....	....	....	....

pupil, mental index 33, educational index 38.

TABLE 7

Distribution of Intelligence Indices fo

Index of Intelligence	D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9	D-10	D-11	D-12	D-13	Total cases	R-1	R-2	R-3	R-4	R-5	R-6	R-7	R-8	R-
96–100																							
91–95																							
86–90						1								1			1	1	1	2	3	1	
81–85		1	1					1		4		4		11	1	3		2	2	4	3		
76–80	1		5		1	1	2			3		4		17		1	1	2		3	1	3	
71–75	6	2	5	3	1		3	3	1	4		6		34	1	2	2	3	6	10	6	9	
66–70	2	5	8	1	1	1	4	3	5	5	1	15		51	5	8	1	6	9	22	19	9	
61–65	7	6	9		1	5	11	4	6	12	1	21		83	6	5	11	16	6	20	21	14	
56–60	7	5	7	2	1	4	12	9	2	6	2	26		83	11	6	4	8	10	26	14	18	
51–55	5	8	7		2	6	10	5	15	8	2	20	4	92	16	12	12	16	13	26	17	22	
46–50	10	2	8	2	2	5	11	1	12	6	3	27		80	21	15	19	16	11	17	20	14	
41–45	6	2	9		1	2	5	2	6	6	1	23		63	19	9	17	17	12	9	13	24	
36–40	2		2		2		7		7	5		12		37	15	7	20	10	8	20	2	18	
31–35	1	1	4	1		2	4	1	4		1	8		27	12	5	10	7	7	5	5	19	
26–30		1			1	1	3	1	2			5		14	10	4	6	2	2	4	2	3	
21–25			2		1		1		2	2		2		10	12	1	7	2	1	9		1	
16–20		1			1		1							3			1		2				
11–15																							
6–10									2					2	1		2			2		2	
1– 5																1							
0							2							2	5	1	1	1	5	12		1	
Cases	47	34	67	9	15	28	76	30	64	61	11	173	4	619	135	80	115	109	95	191	126	158	
Median	55	57.5	57	59	50	53.3	52.5	58.5	48.6	58	52	53	53	53.3	43.5	49.3	43.2	50	50	54.3	57.5	49.3	5

TABLE 8

Distribution of Educational Indices fo

Index of Education	D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9	D-10	D-11	D-12	D-13	Total Cases	R-1	R-2	R-3	R-4	R-5	R-6	R-7	R-8	R-
96–100																							
91–95																							
86–90			2			1				2		4		9		1			1		8	1	
81–85	1		1	1	1	1	1		2	3		4		15	1	1		2			3	1	
76–80	2	2	2				5	2	3	3	1	14		34		1		2	2	3	4	4	
71–75	2		12			1	3	1	4	4	2	17		46		1		2	5	1	17	4	
66–70	4	5	9		2	6	5	5	4	8		28		76	7	5	1	3	8	4	8	12	
61–65	2	2	5	3		2	5	6	9	6	2	28		70	10	11	6	9	11	17	18	15	
56–60	2	3	5	1	1	3	10	8	11	9	1	25		79	13	10	10	7	13	28	17	22	
51–55	8	5	13		2	4	7	3	9	6	2	12		71	7	15	5	19	10	25	20	14	
46–50	6	2	5	2	2	2	11	2	5	4	3	15	1	60	16	12	19	17	9	31	20	16	
41–45	7	4	7	1	2	4	11	1	4	10		9	1	61	18	7	13	9	10	23	6	16	
36–40	3	3	4	1			7	1	5	2		6		32	21	7	14	12	9	23	2	14	
31–35	8	2	1			2	8		1			5	1	28	15	4	18	19	9	11	1	10	
26–30	1	2				1			2	2		2		10	5	3	14	4	3	6	2	15	
21–25	1	3			2	1	1	1	1	1		1		12	12	1	7	2		7		11	
16–20		1			2				1			1	1	6	1		6						
11–15										1				1									
6–10																				1			
1– 5			1											1									
0					1		2		3			2		8	9	1	2	2	5	11		3	
Cases	47	34	67	9	15	28	76	30	64	61	11	173	4	619	135	80	115	109	95	191	126	158	
Median	48.3	50.5	58.5	58	48	55.5	49.1	59.5	56	58	62	61.2	38	57.3	41.4	52.6	39	47.5	51.5	47.2	58.5	48.2	49
Difference	−6.7	−7	+1	−1	−2	+2.2	−3.4	+1	+7.4	0	+10	+8.2	−15	+4	−2.1	+3.3	−4.2	−2.5	+1.5	−7.1	+1	−1.1	−6

TABLE 7

gence Indices for All Schools Visited

-7	R-8	R-9	R-10	R-11	R-12	R-13	R-14	R-15	R-16	R-17	R-18	R-19	R-20	R-21	R-22	R-23	R-24	R-25	R-26	R-27	R-28	Total Cases
				1						1												2
							1				1											2
3	1	1		1		2			1								1				1	16
3			1	4		3	5		4		5	1			1	2	1		1	2		45
1	3	1		9		2	8	1	1	1	3	3			3		2	1		4	1	51
6	9	3		4	3	8	11	2	2	4	5	1	5		7	8	6	3	3	2	1	117
19	9	6	2	16	1	16	19	4	10	11	22	6	3	1	10	8	13	5	5	12	5	254
21	14	3	9	19	2	15	30	9	11	7	18	6	8	2	10	14	15	6	12	4	9	308
14	18	1	13	15	9	15	45	15	6	11	20	7	7	6	24	8	23	6	10	4	9	351
17	22	4	15	12	10	30	41	12	14	26	41	13	16	9	15	7	32	9	27	8	20	505
20	14	4	29	12	12	19	48	16	10	29	40	11	10	10	19	14	46	9	21	12	29	533
13	24	3	22	6	9	24	31	18	8	27	36	8	11	13	21	11	56	6	10	5	24	469
2	18	1	30	9	7	20	27	14	9	24	37	5	12	16	21	5	48	12	9	5	30	441
5	19	1	26	5	7	10	9	7	4	11	23	5	9	11	10	1	40	8	7	2	17	283
2	3	1	13	3	6	14	8	4	6	9	10	1	4	6	5		27	3	2	2	9	166
	1		13		8	8	2	1	3	8	13	3	4	7	10	1	16	1	7	1	5	144
			4	1			1	2		4	1			3	1		5		1		1	27
						1											1		1			3
	2		5		3	2			1				1	4	2	1	3		1			30
												1										2
	1	1	7	1	3	5				1	4		1	4			6		1		4	64
126	158	30	189	118	80	194	286	105	90	174	279	71	91	92	159	80	341	79	118	63	165	3,813
7.5	49.3	55.5	39.3	58.3	43.3	48.4	52.6	47.2	52.8	46.5	47.5	51	47	38	48.2	55.5	42.2	51	50	53.5	43.5	47.6

TABLE 8

onal Indices for All Schools Visited

7	R-8	R-9	R-10	R-11	R-12	R-13	R-14	R-15	R-16	R-17	R-18	R-19	R-20	R-21	R-22	R-23	R-24	R-25	R-26	R-27	R-28	Total Cases
											1											1
8	1			1		1	1	1					1		1					1	1	19
3	1	1				2	2						3		1					1	1	19
4	4		1	4		1	4	1	1		1	3	3		5	3	1	1	1	1		47
17	4		2	13	1	4	12				3	2	2		4	8	5	1	5	2	1	95
8	12	4	2	11	3	5	25	4	1	4	11	4	7		21	9	3	1	11	3	5	182
18	15	3	7	15	3	16	30	5	6	14	26	3	20	5	15	5	11	7	6	5	11	310
17	22	4	16	23	5	21	32	6	13	10	45	11	11	2	26	11	22	7	10	4	9	408
20	14	2	23	21	11	26	44	17	15	32	36	6	6	7	19	17	30	9	9	8	22	475
20	16	6	20	11	8	25	48	14	15	29	33	5	8	11	21	12	30	15	10	7	21	489
6	16	6	26	6	15	21	29	13	20	27	34	11	14	11	18	6	49	10	10	11	27	466
2	14	1	28	3	11	14	27	14	11	16	30	13	2	18	9	2	46	8	18	11	28	412
1	10	2	16	5	6	20	18	14	2	12	26	5	7	17	10	4	58	8	15	5	14	351
2	15		17	3	3	11	2	6	3	10	11	4	3	6	3	2	25	5	9	2	4	181
	11		15	1	5	14	6	5	1	8	9	1	2	4	5		28	2	6		12	164
			4		2	2	2		1	1	4		1	2	1		12	2		4		45
					1																	1
			1			1	2			2		1		1		1	2		2		1	15
														1								1
	3	1	11	1	6	10	2	5	1	9	9	2	1	7			19	3	6	2	4	132
26	158	30	189	118	80	194	286	105	90	174	279	71	91	92	159	80	341	79	118	63	165	3,813
3.5	48.2	49.2	41.6	58	42	46.8	51.5	43.5	47	46.5	48	45	57.1	38	52.6	54	37.8	46	42.5	46	43.5	46.3
+1	−1.1	−6.3	+2.3	−.3	−1.3	−1.6	−1.1	−3.7	−5.8	0	+.5	−6	+10.1	0	+4.4	−1.5	−4.4	−5	−7.5	−7.5	0	−1.3

give the distributions of the total cases by schools without regard to ages, Table 7 showing the intelligence indices and Table 8 the educational. In each table we have first the thirteen day-schools with a total of 619 children and then the twenty-eight residential schools with a total of 3,813 children, making a grand total of 4,432 children. The distribution shows the number of cases for each five-step interval in the scale of indices from 1 to 100 together with a separate line for the zero indices. These zero indices indicate that the tests are too difficult for the children in question. We note that this is true only of 66 cases on the intelligence test, but the number mounts up to 140 cases on the educational test.

The last line of Table 7 and the next to last line of Table 8 give the median indices for each school. The same information may be obtained from the "Totals" columns for the mental and educational tests, respectively, in Table 6. These medians admit of a comparison between schools with reference to mental ability on the one hand and educational achievement on the other. For example, the schools with the highest median intelligence, having medians of 57 and over, are D-2, D-3, D-4, D-8, D-10, R-11, R-7; the schools with the poorest intelligence, having indices below 40 are R-21 and R-10. There are obviously large differences in the general mental make-up of the children attending different schools. Between a school having an average mental index between 50 and 60, and a school having an average index between 30 and 40 there is a large difference. R-21 with the lowest median index of 38 has more than 50 per cent of its children in the backward and dull groups. Only 3 of the 92 children have mental indices above 60, i. e., bright or very bright. Obviously such a school is heavily handicapped in what it can accomplish educationally as contrasted with such a school as R-16 having about the same number of children but with a median mental index of 52.8. Instead of only 3 bright children, this school, R-16, possesses 29. While R-21 is loaded with 11 dull

children, R-16 has only 1 so classified. In this way we may make cross comparisons from school to school. The important point that emerges is, of course, that we cannot expect all schools to accomplish the same amount of educational work. What can be accomplished educationally is dependent upon the mental calibre of the children in the school.

Table 8 allows us to make the same kind of comparison between schools in regard to their educational achievement. Thus we note that D-11 has the highest educational median of 62 and this school is followed by D-12 with a median of 61.2 and so on. The lowest median is 37.8 for R-24.

The difference between the mental and educational medians will, however, be the best measure of the general efficiency of the school. These differences are shown in the last row of Table 8. A plus difference indicates a better than usual educational achievement in terms of the mentality of the children; a minus difference indicates a poorer educational achievement in similar terms. The highest plus difference is + 10.1 for R-20, which indicates that this school is making better use of the mentality of its children than is usual among schools for the deaf. The lowest difference, — 7.5 (neglecting the — 15 for D-13 where there are only 4 children) is found in schools R-26 and R-27. The median mental index of both these schools is around 50, but both fall down 7.5 points in their median educational index. Now school R-2 has also a median mental index around 50, but its median educational index moves up 3.3 points instead of falling. With children of similar mentality obviously R-2 is accomplishing more educationally than either R-26 or R-27.

Comparison of Day and Residential Schools.—Comparing the general medians from day and residential schools, we find the day-school mental median of 53.3 contrasted with the residential mental median of 47.6. The residential schools are loaded with poorer mental material as contrasted with the day-schools. The educa-

TABLE 9

Number and Per Cent of Cases—Intelligence Indices

Group	Day		Residential	
	No.	%	No.	%
Dull	7	1.1	126	3.3
Backward	88	14.2	1,034	27.1
Normal	327	52.8	1,858	48.7
Bright	185	29.9	730	19.1
Very Bright	12	1.9	65	1.7
Total	619	99.9	3,813	99.9

tional median for the day-schools is 57.3 as contrasted with 46.3 for the residential. The day-schools are accomplishing more educationally. The difference for the day-schools is + 4, for the residential — 1.3. The day-schools are making better use of their mental material than are the residential schools.

The general mental calibre of the children in day and residential schools is shown by the summary in Table 9. The significance of the groups, Very Bright, Bright, etc., has already been explained. The day-schools have a larger percentage of bright and very bright, and the

TABLE 10

Number and Per Cent of Cases—Educational Indices

Group	Day		Residential	
	No.	%	No.	%
Very Poor	16	2.6	194	5.1
Poor	82	13.2	1,108	29.1
Average	271	43.8	1,838	48.2
Good	226	36.5	634	16.6
Very Good	24	3.9	39	1.0
Total	619	100.0	3,813	100.0

TABLE 11
Intelligence Indices According to Age When Deafness Occurred

Intelligence Indices	Unknown	Birth	0-12 mo.	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
0– 19	7	23	9	3	2	3	3	.....	1	1	1	.....	.....	....	....	....	53
20– 39	53	264	46	55	47	20	9	9	9	9	5	2	2	1	....	....	531
40– 59	97	556	115	31	107	52	40	37	19	20	16	8	8	3	3	1	1,213
60– 79	43	269	48	62	42	27	22	26	13	11	10	7	7	2	1	....	590
80–100	1	17	4	3	3	2	1	2	.....	2	1	.....	.....	....	....	....	36
Total	201	1,129	222	254	201	104	75	74	42	43	33	17	17	6	4	1	2,423
Median	48.4	50.0	49.7	50.5	49.6	51.2	52.7	55.1	51.6	51.5	53.1	56.0	56.0	53	53	50	50.3

TABLE 12
Educational Indices According to Age When Deafness Occurred

Educational Indices	Unknown	Birth	0-12 mo.	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
0– 19	5	24	4	2	4	4	1	.....	.....	2	.....	.....	.....	....	....	....	46
20– 39	71	277	64	77	48	26	12	9	5	6	6	1	.....	....	....	....	602
40– 59	90	598	117	118	97	37	30	26	12	11	8	1	4	1	1	....	1,151
60– 79	35	220	36	55	49	37	31	34	22	19	15	12	11	5	3	1	585
80–100	.....	10	1	2	3	.....	1	5	3	5	4	3	2	....	....	....	39
Total	201	1,129	222	254	201	104	75	74	42	43	33	17	17	6	4	1	2,423
Median	45.5	48.8	47.4	48.1	50.0	51.9	56.3	61.2	63.6	62.6	63.3	71	68	68	67	70	49.8

residential schools have more of backward and dull. There are three times the percentage of dull in the residential as compared with the day-schools.

Table 10 gives the same type of comparison for the educational indices. The superior educational attainments of the day-schools is apparent, but of course they should do better inasmuch as they have children of higher mental ability.

Age of Deafness.—Information as to the age at which a child became deaf obtained by the survey allows us to raise the question as to what influence this may have upon our tests. Table 11 and 12 give the desired information. Only the 12, 13, 14 and 15-year-olds were tabulated. These total 2,423 cases, or a little over 50 per cent of the total number of cases examined. Table 11 shows the distribution of intelligence indices according to the age at which deafness was said to occur. The first column is for the unknown cases, i. e., cases for which no information was available; the second column for those reported deaf at birth; the third for those reported deaf during the first twelve months of life; the next for those reported deaf at age one, and so forth. Each column shows the number of cases for each twenty-point interval of our intelligence scale. The last row of the table gives the median intelligence index for each of these "age of deafness" groups.

Table 12 shows the distribution of the same cases according to their educational index.

A study of the median indices of these different "age of deafness" groups is instructive. Figures 1 and 2 enable us to do this easily. The median intelligence index does not vary much as we read along the botton row of Table 11. This is shown by the almost horizontal line of Figure 1. The index for most groups is very close to fifty or normal all along the line. So far as intelligence is concerned, we seem to have a similar distribution at each "age of deafness." Having possessed hearing for

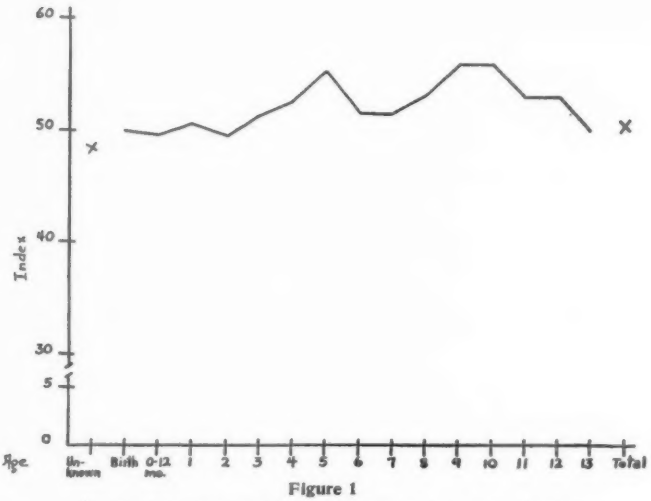

Figure 1

Median Intelligence Index According to Age of Deafness

so many years of life seems to have no effect upon the ability to succeed in the non-language test.

If now we turn to the medians of the educational indices in Table 12, we note a tendency for these to increase as the age at which deafness occurred increases. This is shown by the rise of the curve in Figure 2. The later the "age of deafness," the higher is the child likely to score on the educational test. Each year of hearing after age one seems to give a better chance for educational achievement. This must undoubtedly be connected with the language ability of the child. In hearing children speech begins at about 12 months, increasing rapidly thereafter. Each year of speaking and hearing gives the child a rapidly increasing vocabulary, such as the child born deaf cannot obtain. The advantage of thus acquiring some language before deafness sets in, is seen reflected in the distinct increase of the medians in Table 12 and Figure 2. The marked rise in the curve occurs at age 4.

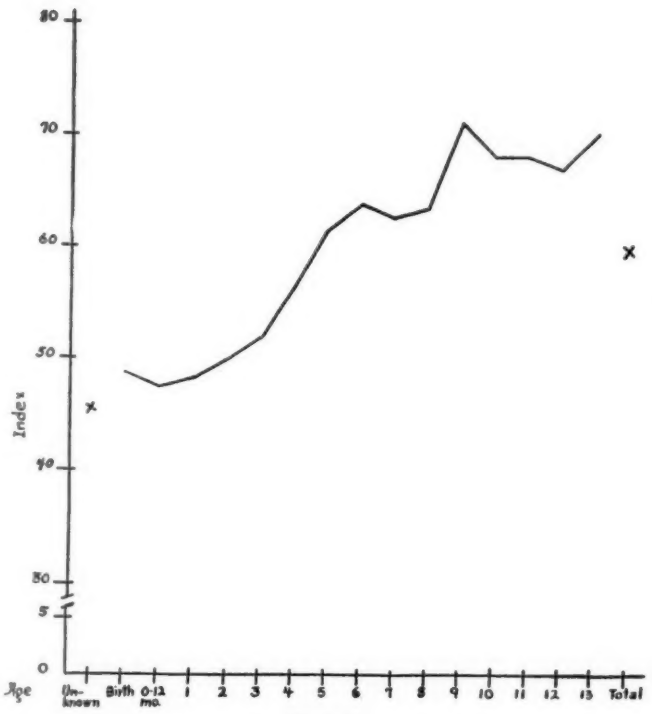

Figure 2

Median Educational Index According to Age of Deafness

In the Reamer report, age six was found to be the significant age. In a study by Pintner and Paterson[14] age 4 or 5 was found to be significant. They say "Children who lost their hearing before the age of four or five are very little, if at all, benefited, as far as language ability is concerned, by having once possessed hearing." In general, therefore, the results of the present survey agree well with previous findings.

Method of Instruction.—All the 12, 13, 14 and 15-

[14]Pintner, R., and Paterson, D. G., "A Measurement of the Language Ability of Deaf Children," *Psychological Review*, November, 1916 (vol. xxiii, no. 6), pp. 413-436.

year-old children, totaling 2,423 cases, were divided into three groups according as the method of instruction seemed to be predominantly oral or manual or combined. The oral cases numbered 1,845 or 76 per cent of the total; the manual cases numbered only 186 or 7.7 per cent of the total; the combined cases numbered 392 or 16.3 per cent of the total.

Table 13 shows the distribution by number and per cent of intelligence indices in ten-step intervals for the three methods of instruction, oral, manual, combined. The fourth column contains the manual and combined cases thrown together. The last column shows the distribution of the total 2,423 cases. The highest median index is for the oral group. It is about 10 points above the manual and about 5 points above the combined, and 2 points above the median of the total group.

There would seem, therefore, to be a distinct tendency for the more intelligent children to be chosen for oral instruction. This tendency may not be a conscious policy in all schools. Such a differentiation will, of course, not exist in a school where all the children are given oral instruction.

A further inspection of the percentages of the dis-

TABLE 13

Intelligence Indices According to Methods of Instruction

Intelligence Indices	Oral		Manual		Combined		Manual and Combined		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
0– 9	9	.5	4	2.2	2	.5	6	1.0	15	.62
10– 19	20	1.1	11	5.9	9	2.3	20	3.5	40	1.65
20– 29	89	4.8	28	15.1	41	10.4	69	11.9	158	6.52
30– 39	247	13.4	44	23.7	82	20.9	126	21.8	373	15.39
40– 49	459	24.9	51	27.4	90	22.9	141	24.4	600	24.76
50– 59	498	27.0	28	15.1	84	21.4	112	19.4	610	25.18
60– 69	357	19.3	13	7.0	53	13.5	66	11.4	423	17.46
70– 79	139	7.5	6	3.2	23	5.9	29	5.0	168	6.93
80– 89	20	1.1	1	.5	5	1.3	6	1.0	26	1.07
90–100	7	.4	0	0	3	.8	3	.5	10	.41
Total...	1,845	100.0	186	100.1	392	99.9	578	99.9	2,423	99.99
Median.	52.0	.....	41.2	.....	46.9	.....	44.8	.....	50.4	.....

tribution table shows that 8.1 per cent of the manual and 2.8 per cent of the combined have indices below 20, i. e., have decidedly poor intelligence, whereas only 1.6 per cent of the oral are so classified. Evidently the oral method is not considered good for dull pupils, or else it has not been properly adapted to them. Again the oral method contains much larger percentages of pupils in the brighter groups (with indices above 60) than does the manual method; the oral having 28.3 per cent above an index of 60, as contrasted with the manual having 10.7 per cent so classified. This tendency of the oral

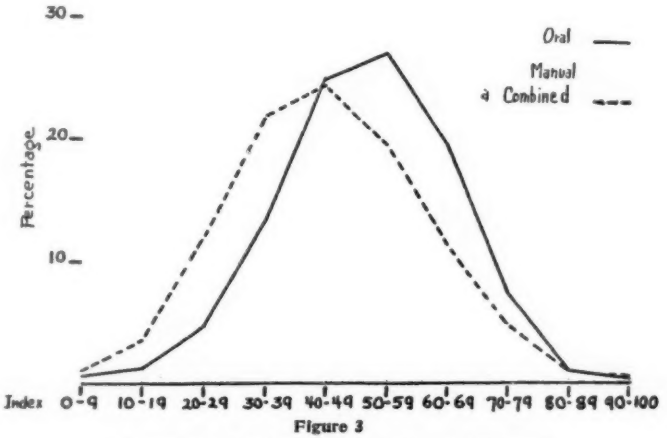

Figure 3

Comparison of Oral and Other Methods—Intelligence

method to select the brighter pupils is shown by the percentage distribution curves in Figure 3. Of course, the outstanding fact in the diagram is the great overlapping of the two groups, oral and otherwise. If any method of instruction is better adapted to a certain degree of intelligence or not, we do not know. The diagram shows all methods of instruction being indiscriminately taught to all types of intelligence.

Table 14 shows the educational indices according to

TABLE 14

Educational Indices According to Methods of Instruction

Educational Indices	Oral		Manual		Combined		Manual and Combined		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
0– 9	13	.7	7	3.8	5	1.3	12	2.1	25	1.03
10– 19	13	.7	4	2.2	5	1.3	9	1.6	22	.91
20– 29	109	5.9	28	15.1	33	8.4	61	10.5	170	7.02
30– 39	286	15.5	56	30.1	88	22.5	144	24.9	430	17.75
40– 49	420	22.8	51	27.4	106	27.0	157	27.2	577	23.81
50– 59	472	25.6	30	16.1	75	19.1	105	18.2	577	23.81
60– 69	304	16.5	8	4.3	57	14.5	65	11.2	369	15.23
70– 79	195	10.6	2	1.1	18	4.6	20	3.5	215	8.87
80– 89	19	1.0	0	0	3	.8	3	.5	22	.91
90–100	14	.8	0	0	2	.5	2	.3	16	.66
Total...	1,845	100.1	186	100.1	392	100.0	578	100.0	2,423	100.0
Median.	51.7	.....	39.6	.....	46.1	.....	44.0	.....	49.8	.....

method of instruction. The median educational index for the oral group is 51.7, higher than for the others, as it should be because of the higher intelligence of the oral group. Figure 4 shows the comparison between the oral and other groups. This figure is essentially the same as Figure 3 for the intelligence indices. If now, the oral method was producing much better language achievement than the other methods, it should be evident in our

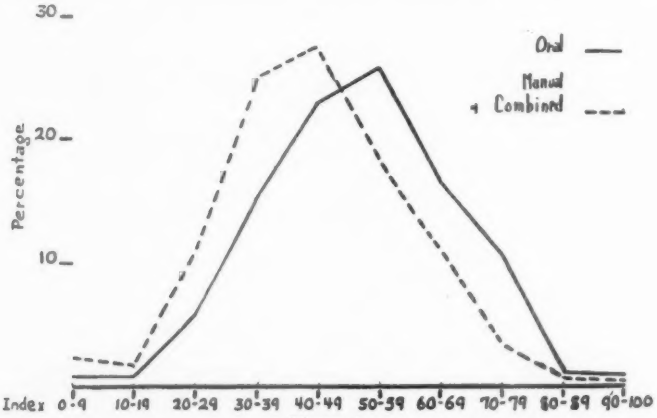

Figure 4
Comparison of Oral and Other Methods—Education

table and diagram. We note, however, all three methods are doing just about what is to be expected according to the mentality of the pupils. Compare the median educational index of 51.7 with the intelligence index of 52.0 for the orals. The difference is negligible. Superior language work from oral instruction would have raised the educational index much above the mental. This is not the case. Similar comparisons of the educational and mental indices of the manual and combined methods also show negligible differences. The conclusion must be that no one method is superior to the others with reference to the educational achievement of the pupils, when we take into consideration their basic intelligence.

Comparison of Deaf and Hearing Children.—All the 12, 13, 14 and 15-year olds were used in a comparison between deaf and hearing children. These ages are most representative of the deaf children tested in the survey. There are between 500 and 600 deaf children for each of these ages. The hearing children, with which these deaf children are compared, consist of the random sampling of children by means of which the intelligence and educational tests have been standardized. There are over a thousand of such children for ages 12, 13 and 14, and 700 for age 15. The samplings of deaf and hearing children are probably fairly representative samplings of such children in the United States. The poorest sampling is undoubtedly the group of fifteen-year-old hearing children. This group is smaller than the other hearing groups and probably does not contain a sufficient number of superior intelligence, because it is largely, but not entirely, made up of pupils in the elementary schools. The predominance of elementary school children in general in the hearing group would tend to depress the hearing norms, if such were the case. At any rate we may be sure that these norms are not in any way artificially increased, and, therefore, the deaf children are not being compared with superior hearing children.

TABLE 15

Distribution of Intelligence Scores—Deaf

Scores	Ages				
	12	13	14	15	Total
0– 99	51	51	43	35	180
100–199	106	106	88	65	365
200–299	187	188	197	116	688
300–399	160	176	199	225	760
400–499	43	77	142	126	388
500–599	.....	10	8	23	41
600–up	.....	.....	1	.....	1
Total	547	608	678	590	2,423
Mean...	257.7	275.6	300.5	320.1	289.4
σ.....	108.6	113.2	116.0	118.9	116.7
σm.....	4.64	4.59	4.46	4.89	2.37

TABLE 16

Distribution of Intelligence Scores—Hearing

Scores	Ages				
	12	13	14	15	Total
0– 99	19	18	7	13	57
100–199	142	80	57	41	320
200–299	349	254	179	108	890
300–399	562	558	441	254	1,815
400–499	265	334	381	233	1,213
500–599	24	51	55	51	181
600–up	.....	.....	.....	.....	.....
Total	1,361	1,295	1,120	700	4,476
Mean...	321	348	362	364	.....
σ.....	97	96	91	99	.....
σm.....	2.6	2.7	2.7	3.7	.....

The Intelligence Test.—Tables 15 and 16 show the distribution of scores for deaf and hearing children. At the bottom of each table the means and standard devia-

tions are given. A comparison of the means shows an appreciable difference between the average deaf and hearing child at each of the four ages with reference to intelligence. The differences between the means, the standard deviations of the differences and the ratios of the difference to the standard deviation are given below:

Ages	12	13	14	15
Difference of means....	63.3	72.4	61.5	43.9
Standard deviations....	5.22	5.32	5.31	6.13
Ratios	12.12	13.59	11.59	7.16

These ratios show clearly that we are not here dealing with chance differences.

Another way of comparing the deaf and hearing is to interpret the means of the deaf in terms of the means of the hearing. The mean score of the 12-year-old deaf

TABLE 17

Percentage Distribution of Intelligence Scores—Deaf

Scores	Ages				
	12	13	14	15	Total
0– 99	9.3	8.4	6.3	5.9	7.43
100–199	19.4	17.4	13.0	11.0	15.06
200–299	34.2	31.0	29.0	19.7	28.39
300–399	29.3	28.9	29.0	38.1	31.36
400–499	7.9	12.6	20.9	21.4	16.01
500–599	.....	1.7	1.2	3.8	1.69
600–up	.....	.....	.2	.....	.04
Total	100.1	100.0	99.9	99.9	99.98

is 258 and this is about the mean for the 10-year-old hearing children; the mean for 13-year-old deaf is 276, about the mean for 10½-year-old hearing; the mean for 14-year-old deaf is 300, about the mean for 11-year-old hearing; and the mean for 15-year-old deaf is 320, about the mean for 12-year-old hearing.

Tables 17 and 18 show the same comparison between deaf and hearing in terms of percentage of children for

TABLE 18

Percentage Distribution of Intelligence Scores—Hearing

Scores	Ages				
	12	13	14	15	Total
0– 99	1.4	1.4	.6	1.9	1.3
100–199	10.4	6.2	5.1	5.9	6.9
200–299	25.7	19.6	16.1	15.5	19.2
300–399	41.4	43.0	39.3	36.3	40.0
400–499	19.4	25.8	33.9	33.3	28.1
500–599	1.8	3.9	4.9	7.2	4.5
600–up	.....	.....	.....	.....	.....
Total	100.1	99.9	99.9	100.1	100.0

each score interval and Figures 5, 6, 7 and 8 give the same comparison graphically. These figures show clearly the superiority of the hearing to the deaf child. There are always larger percentages of deaf at the lower scores and larger percentages of the hearing at the higher scores.

The Educational Test.—Tables 19 and 20 show the distribution of scores for the deaf and the hearing on the educational test. At the bottom of each table the means and standard deviations are given. A comparison of the means shows a very considerable difference between the average deaf and hearing child at each of the four ages with reference to educational achievement. The differences between the means, the standard deviations of these differences and the ratios of difference to standard deviation are given below:

Ages	12	13	14	15
Difference of means..	39.2	42.8	41.2	37.6
Standard deviations..	.836	.865	.876	1.131
Ratios	46.89	49.48	47.032	33.244

These ratios clearly show that we are here dealing with differences very much greater than chance would offer.

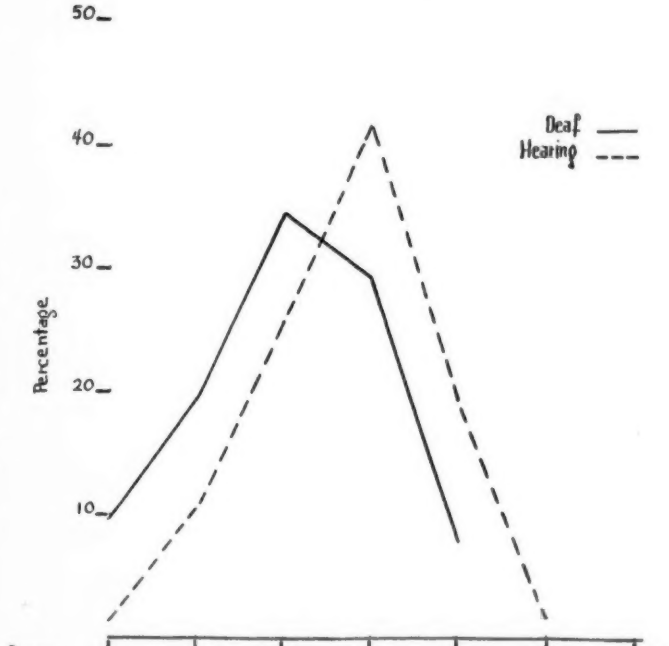

Figure 5
Comparison of Intelligence of Deaf and Hearing—Age 12

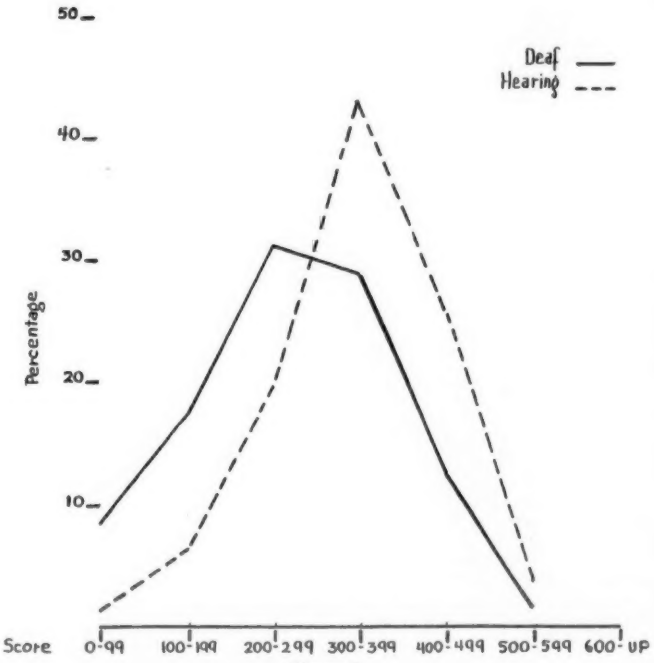

Figure 6
Comparison of Intelligence of Deaf and Hearing—Age 13

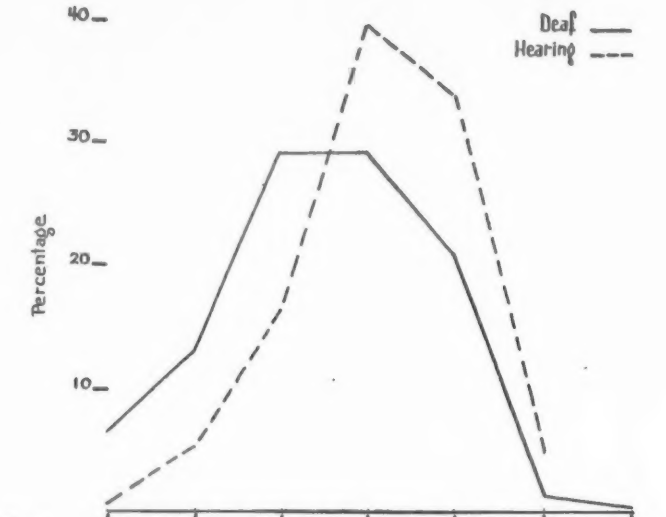

Figure 7
Comparison of Intelligence of Deaf and Hearing—Age 14

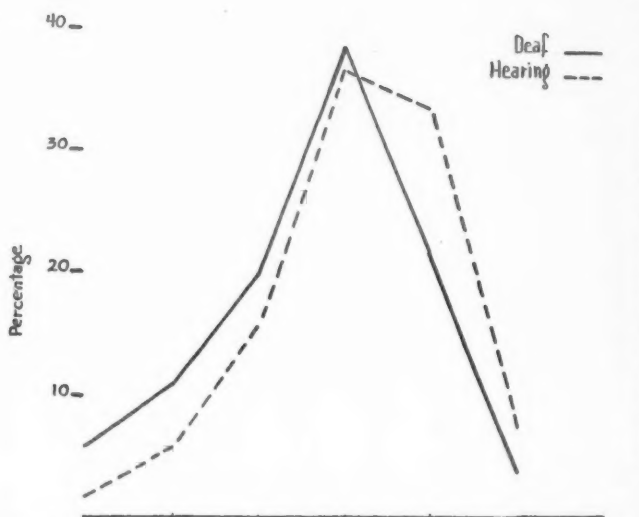

Figure 8
Comparison of Intelligence of Deaf and Hearing—Age 15

TABLE 19

Distribution of Educational Scores—Deaf

Scores	Ages				
	12	13	14	15	Total
0– 19	402	374	362	255	1,393
20– 39	111	173	208	204	696
40– 59	22	43	78	91	234
60– 79	9	13	20	28	70
80– 99	3	5	10	12	30
100–119	.....	.....	.....	.....	.....
120–	.....	.....	.....	.....	.....
Total	547	608	678	590	2,423
Mean...	15.8	19.2	22.8	27.4	20.47
σ.....	14.8	16.3	18.0	19.74	17.8
σm.....	.63	.66	.69	.81	.36

TABLE 20

Distribution of Educational Scores—Hearing

Scores	Ages				
	12	13	14	15	Total
0– 19	64	35	17	21	137
20– 39	254	146	93	63	556
40– 59	475	391	313	188	1,367
60– 79	411	463	473	269	1,616
80– 99	150	245	211	136	742
100–119	7	15	13	22	57
120–139	.....	.....	.....	1	1
Total	1,361	1,295	1,120	700	4,476
Mean...	55	62	64	65	.....
σ.....	20.1	20.2	18.1	21.0	.....
σm.....	0.55	0.56	0.54	0.79	.....

Again comparing the deaf means in terms of the age means for the hearing, we find that the 12-year-old deaf mean of 16 is not quite up to the 8-year-old hearing mean;

TABLE 21

Percentage Distribution of Educational Scores—Deaf

Scores	Ages				
	12	13	14	15	Total
0– 19	73.5	61.6	53.4	43.2	57.49
20– 39	20.3	28.4	30.7	34.6	28.71
40– 59	4.0	7.1	11.5	15.4	9.65
60– 79	1.6	2.1	2.9	4.8	2.88
80– 99	.6	.8	1.4	2.0	1.23
100–119	.....	.....	.....	.....	.....
120–	.....	.....	.....	.....	.....
Total	100.0	100.0	99.9	100.0	99.96

TABLE 22

Percentage Distribution of Educational Scores—Hearing

Scores	Ages				
	12	13	14	15	Total
0– 19	4.7	2.7	1.5	3.0	3.0
20– 39	18.6	11.3	8.3	9.0	11.8
40– 59	34.9	30.2	27.9	26.9	30.0
60– 79	30.2	35.8	42.2	38.5	36.7
80– 99	11.0	19.0	18.8	19.4	17.1
100–119	.5	1.1	1.2	3.2	1.5
120–up.	.....	.....	.....	.1	.03
Total	99.9	100.1	99.9	100.1	100.1

the 13-year-old deaf mean of 19 is just one point above the hearing 8-year-mean; the 14-year-old deaf mean of 23 is not quite up to the hearing 9-year-old mean; and the 15-year-old deaf mean of 27 is just equal to the 9-year-old hearing mean. In other words the average deaf child from 12 to 15 achieves on the educational tests what the 8 or 9-year-old hearing child achieves. The retardation

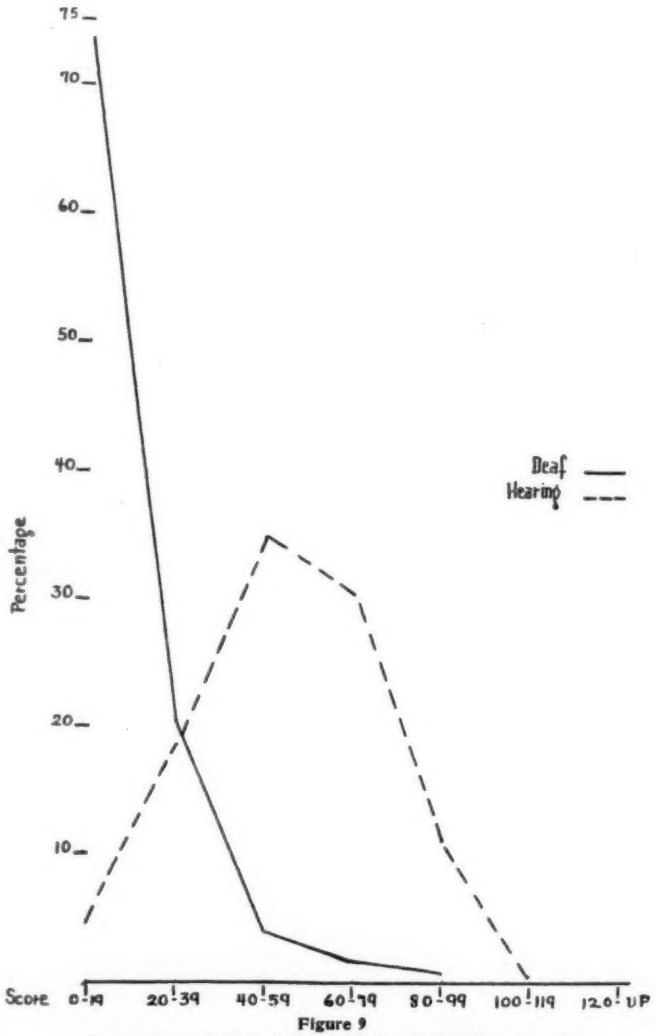

Figure 9
Comparison of Education of Deaf and Hearing—Age 12

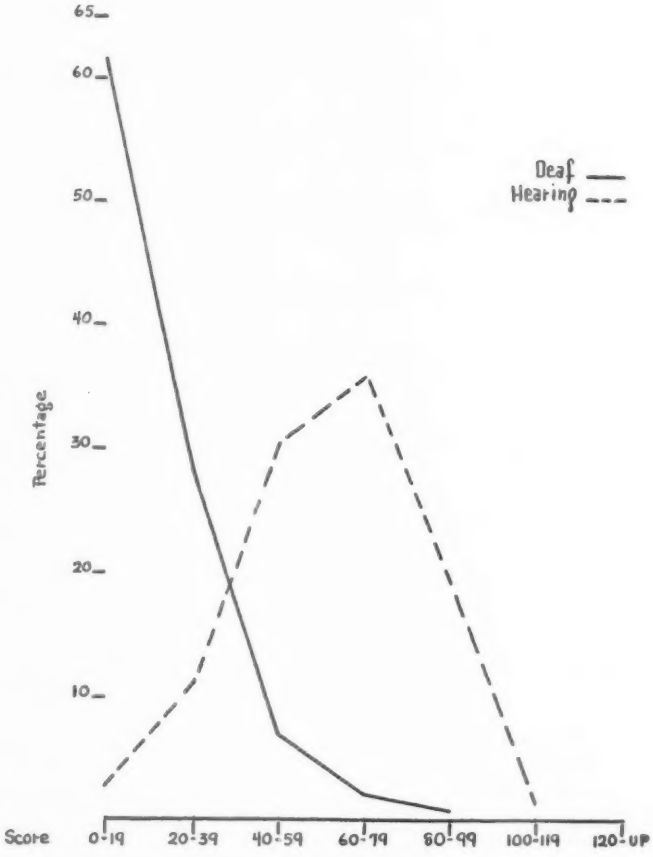

Figure 10
Comparison of Education of Deaf and Hearing—Age 13

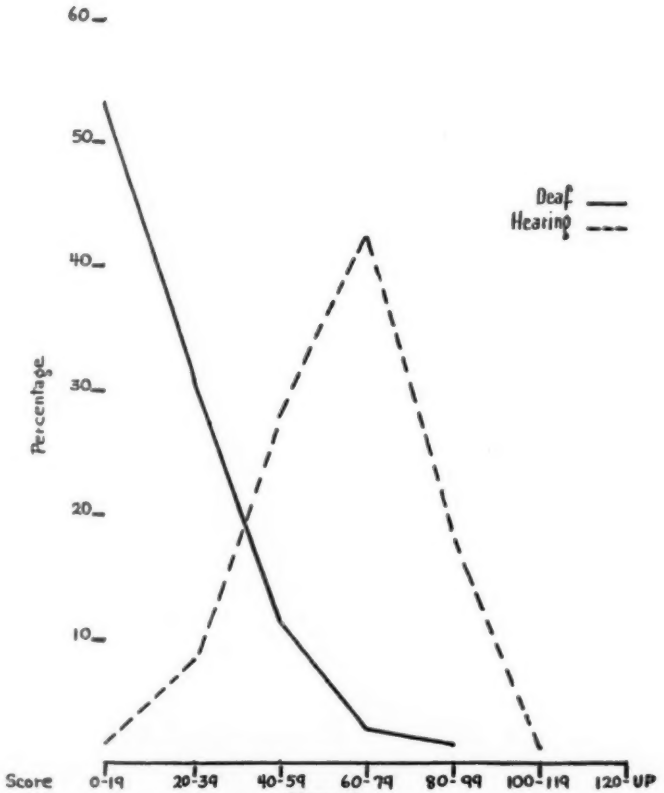

Figure 11
Comparison of Education of Deaf and Hearing—Age 14

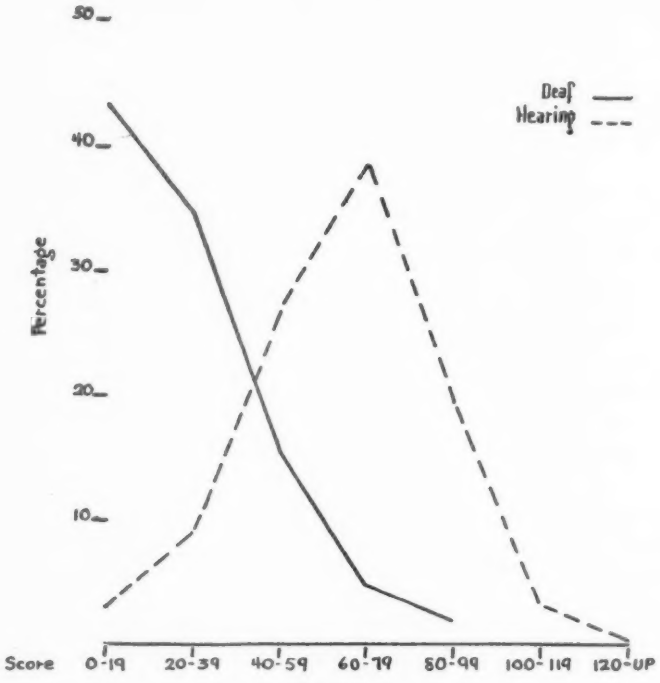

Figure 12
Comparison of Education of Deaf and Hearing—Age 15

here is much more marked than is the case in the intelligence test.

Tables 21 and 22 show the same comparison between the deaf and the hearing in terms of percentages of children for each score interval and Figures 9, 10, 11, and 12 show the same comparisons graphically. Here the great difference between the deaf and hearing is apparent. As a matter of fact, the graphs show a very large percentage of deaf children scoring less than 20 points, whereas very few hearing children score so low. Very few deaf children exceed 80 points on the test, but a considerable number of hearing children do so.

TABLE 23

Median Scores by Ages and Schools—Intelligence

Schools	Ages															
	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	30
D- 1	240	291	374	389	455	441	375	...	...	...	...	...	...	...	...	...
D- 2	309	388	349	378	392	485	450	497	467	...	...	...	...	...	...	...
D- 3	303	398	381	429	384	337	239	...	...	...	...	...	...	...	...	...
D- 4	385	450	459	...	358	365	...	...	...	...	...	...	...	...	...	...
D- 5	272	420	...	364	180	365	...	110	...	...	...	...	...	...	...	...
D- 6	187	302	378	421	398	...	...	...	...	...	...	...	...	...	...	...
D- 7	297	302	329	338	374	383	239	338	...	...	...	...	...	...	...	...
D- 8	337	398	378	452	403	441	...	...	252	...	...	...	...	...	...	...
D- 9	303	402	349	296	358	232	...	375	344	...	...	...	...	...	...	...
D-10	366	327	348	319	417	470	525	412	...	...	...	...	...	...	...	...
D-11	292	260	...	319	414	365	...	...	...	...	...	...	...	...	...	...
D-12	337	330	371	331	...	322	210	180	288	430	...	...	...	...	...	...
D-13	...	...	...	362	...	382	409	...	...	...	...	...	...	...	...	...
R- 1	278	245	290	384	334	335	292	302	270	328	275	328	...	...	...	...
R- 2	296	280	364	364	369	367	377	248	90	...	...	...	...	...	...	...
R- 3	219	239	277	278	335	...	340	...	365	278	...	403	403	...	...	...
R- 4	314	316	328	391	347	385	329	391	387	428	...	...	...	...	...	...
R- 5	265	369	381	342	416	402	427	330	180	363	275	...	...	...	...	...
R- 6	247	316	380	319	382	439	451	493	437	463	336	...	...	...	...	...
R- 7	436	558	434	462	502	459	439	500	440	...	...	...	...	...	...	...
R- 8	310	305	330	342	329	340	396	415	449	428	310	280	280	...	...	...
R- 9	325	330	350	345	486	444	...	250	558	...	...	...	...	...	...	...
R-10	217	286	263	212	265	370	245	307	309	322	275	...	...	...	275	...
R-11	317	302	308	410	429	503	460	391	...	...	...	...	...	...	...	...
R-12	295	233	360	302	371	340	260	270	275	...	...	...	...	...	...	...
R-13	236	257	337	362	389	324	396	419	433	402	365	140	412	278	...	...
R-14	335	351	325	366	390	408	389	423	420	402	412	...	...	...	...	...
R-15	257	265	292	380	332	435	375	375	310	412	...	...	...	...	...	...
R-16	309	291	358	365	358	391	485	350	351	321	...	...	...	...	...	...
R-17	239	288	269	319	345	335	368	351	384	463	...	...	...	...	...	...
R-18	235	333	315	319	327	380	350	395	316	428	...	...	...	...	...	...
R-19	294	369	363	383	358	385	405	390	387	403	270	...	...	...	...	...
R-20	200	351	320	286	363	325	375	410	490	329	...	...	...	...	...	...
R-21	125	238	247	302	298	355	335	315	282	235	275	100	265	...	...	...
R-22	235	352	315	314	358	470	315	375	...	...	...	...	...	...	...	...
R-23	341	402	395	394	369	340	328	451	451	...	...	...	...	...	...	...
R-24	235	265	270	294	322	295	391	262	326	334	428	275	...	190	...	396
R-25	310	334	360	370	331	374	308	412	321	428	...	220	...	...	...	...
R-26	295	291	341	328	369	292	287	439	310	428	...	...	...	...	...	...
R-27	230	399	315	366	445	505	366	389	558	...	...	...	...	...	...	...
R-28	278	260	267	250	268	338	415	350	283	363	275	...	...	...	...	...

TABLE 24

Median Scores by Ages and Schools—Education

Schools	Ages													
	12	13	14	15	16	17	18	19	20	21	22	23	24	25
D- 1	11	20	27	21	31	48	19	...	...	...	...	...	...	...
D- 2	14	18	22	15	34	65	14	53	32	...	...	...	...	...
D- 3	28	30	32	36	31	59	8	...	...	...	...	...	...	...
D- 4	28	30	69	...	22	30	...	...	...	...	...	...	...	...
D- 5	18	16	...	25	23	32	...	...	...	...	...	...	...	...
D- 6	18	19	30	36	52	...	...	...	...	...	...	...	...	...
D- 7	15	25	30	25	31	32	32	24	...	...	...	...	...	...
D- 8	30	27	40	47	38	52	...	...	40	...	...	...	...	...
D- 9	11	34	30	55	34	32	...	32	39	...	...	...	...	...
D-10	29	23	24	39	40	47	72	48	...	...	...	...	...	...
D-11	20	22	...	60	45	32	...	...	...	...	...	...	...	...
D-12	28	36	47	36	...	34	44	15	18	49	...	...	...	...
D-13	...	...	...	11	...	32	14	...	...	...	...	...	...	...
R- 1	9	14	22	25	17	25	31	43	33	18	37	27	...	...
R- 2	22	32	27	25	31	39	27	32	22	...	...	...	...	...
R- 3	6	14	18	27	17	...	13	...	38	22	...	18	27	...
R- 4	16	19	21	33	19	22	39	41	34	48	...	...	...	...
R- 5	20	28	27	24	51	47	51	32	34	37	50	...	...	...
R- 6	13	17	22	15	29	34	33	48	49	42	34	...	...	...
R- 7	...	...	30	90	78	86	76	89	87	74	74	...	...	...
R- 8	15	25	26	20	29	42	53	43	47	29	20	81	6	...
R- 9	12	15	35	47	33	34	...	23	52	...	...	...	...	...
R-10	11	15	20	9	17	36	25	24	29	25	23	...	...	...
R-11	20	22	30	39	39	59	47	41	...	...	...	...	...	...
R-12	12	14	22	20	23	25	30	18	20	...	...	...	...	...
R-13	10	13	26	33	31	26	40	48	42	49	18	19	23	19
R-14	16	22	26	27	31	42	46	49	49	64	34	...	...	...
R-15	14	12	21	17	17	36	27	27	22	37	...	...	...	...
R-16	15	13	27	21	23	34	38	34	32	50	...	...	...	...
R-17	14	16	18	20	29	27	45	46	40	50	...	...	...	...
R-18	15	20	26	20	27	35	43	39	32	10	...	...	...	...
R-19	14	35	22	22	22	28	27	48	34	24	9	...	...	...
R-20	23	30	29	15	37	27	32	58	42	49	...	...	...	...
R-21	5	13	18	17	14	20	25	22	18	18	27	10	27	...
R-22	23	25	29	25	29	46	46	42	...	...	...	...	...	...
R-23	20	22	40	28	43	27	43	43	49	...	...	...	...	...
R-24	7	11	15	15	19	26	40	18	20	23	13	28	...	23
R-25	14	22	26	20	25	31	22	41	30	58	...	23	...	...
R-26	11	13	24	12	21	23	26	73	18	29	...	...	...	...
R-27	7	17	30	20	24	63	32	46	72	...	...	...	...	...
R-28	13	14	21	16	19	28	27	32	25	27	18	...	...	...

Age-Scores by Schools.—To add to any further comparison of deaf and hearing children that might be desired, Tables 23 and 24 give the median crude scores for each age for each school for the two tests. These medians are approximations and have been calculated from the median indices in the original distribution of indices by schools.

Intelligence and Attainment.—The significant retardation of the deaf as contrasted with the hearing is not so much their retardation in intellectual development as measured by the Non-Language Test, but rather their great retardation in educational achievement. A cursory inspection of the educational tests shows a very marked tendency for the deaf child to respond rather than to refrain in case he is doubtful of the correct answer. There seems to be a lack of what Binet called autocriticism. The deaf child seems less critical of his responses, as compared with the hearing child. Often the examiner can see absolutely no connection between the response and the stimulus. Samples taken at random follow.

Geography.—

Question: In what direction are you facing when your back is toward the north?

Answers: In two.
In what direction.
New York City.
America.
The facing North.
Front hall.
Woman same.
You facing.

Question: Name two reasons why cities usually grow up at falls in rivers.

Answers: Autumn.
Ural mountains and Ural river.
The brother and living.

No.
Boys.

Completion Sentences.—The italic words are the completions added by deaf children.

We are going *in class* school.
The sky *I have* blue.
The poor baby *and* as if it were *Dick* sick.
A home is *girl* merely a place *will go* one *home* live comfortably.
The girl plays *girls* her dolls all day.
The *boys* plays *with* her dolls all day.
Boys and *Jim* soon become *lady* and women.
The poor little *baby* has *did* nothing to *did not;* he is hungry.
The poor child *well* as if it were *very* sick.
We are going *will go* school.
The sky *been* blue.
The sky *red and* blue.
We are going *yes* school.
The sky *dress* blue.
The poor baby *girl* as if it were *baby* sick.

Summary.—

1. The Pintner Non-Language Mental Test and the Pintner Educational Survey Test were given to a wide sampling of deaf children.
2. These two tests have been found to be valid and reliable measuring instruments for both deaf and hearing children.
3. The children tested numbered 4,432, from thirteen day-schools and twenty-eight residential schools for the deaf.
4. The geographical distribution of the children tested conforms fairly well to the geographical distribution of the total number of deaf persons as reported by the census of 1920.
5. The children tested are all twelve years of age or

older. Younger children were not included because the tests would not have been very suitable for them.

6. The distribution of children by ages seems to indicate that the residential schools tend to keep their children much longer than the day-schools.
7. The norms for deaf children used in this report are based upon the children tested in this survey.
8. Distribution tables showing the mental and educational indices for each age-group for each school have been prepared.
9. A comparison of the efficiency of schools is made possible by means of the differences between the mental and educational medians for each school.
10. Day-schools seem to be achieving more educationally than residential schools.
11. Day-schools possess in general a larger percentage of children of higher mental calibre than do the residential schools.
12. The age at which deafness occurs has little influence on the mental rating, but a decided influence on the educational rating. Each year of hearing after age 4 seems to give an increased facility in language as measured by the educational test.
13. None of the three general methods of instruction, oral, manual or combined, seems to be superior to the others when the intelligence of the child is taken into account.
14. A comparison of the intelligence ratings for the deaf and hearing at ages 12 to 15, inclusive, shows a distinct superiority for the hearing.
15. A similar comparison of the educational ratings shows a very marked superiority for the hearing, much greater than for intelligence.

Conclusion.—The outsanding feature of this analysis of the educational and intelligence ratings of deaf children is the very marked divergence of the deaf and hearing in

regard to educational attainment, a divergence markedly greater than the divergence between the two groups intellectually. The problem in the education of the deaf would therefore seem to be to close this educational gap between the deaf and the hearing until it becomes no wider than the gap which exists between the intelligence of the deaf and that of the hearing. How this should be done, if it is indeed possible, cannot be determined by any such survey as we have made. The survey can only point out the conditions that at present exist. Knowing the conditions, however, the way is now clear for further and prolonged investigation and experiment.

Personal suggestions of the writer may here be in order. Questions such as the following should be faced. Would the education of the deaf child be accelerated if it were begun at a much earlier age than is now customary? The most modifiable years of a child's life are the earlier years, and most deaf children spend these without any systematic education. Could not reading be taught earlier and more efficiently than at present, so that the deaf children might get a better start with this basic tool? May not the enthusiasm of the oralists have led them to spend too much time in speech and lip-reading at an age when this basic tool of reading should receive more attention? Is the curriculum of the average school for the deaf developing in the light of modern curriculum research in the school for the hearing? Is the average teacher of the deaf being trained as well as she should be? Is she getting as good a training for her work as the teacher in the ordinary school for the hearing?

These and many other questions arise in working up the results of a survey like this. Obviously, answers to these questions can come only through long and extended research. This survey will have achieved its purpose if it stimulates such research.

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New York City.

TELL—ASK—SAY[1]

Our method of procedure in teaching "Tell," "Ask" and "Say" meets our own particular needs. Each step is taken up systematically and thoroughly and when it is mastered by the pupils we find that they use the different forms spontaneously. The ability to use each principle is the test.

The work is introduced in the third grade beginning with "tell" and followed by "ask."

Under "tell" the first step is "tell about."

Pupils *tell about* things when they know about them. "To tell about" may be taught without infringing on the formal work of "to tell," e. g., Tom got a letter from his mother and she told him about his rabbits and he wishes to tell his teacher what she told him. He should have the form to enable him to say, "I got a letter from my mother. She told me about my rabbits. They are large now. She gave some carrots to them." To enable him to tell what she told him, he must have drill on telling about all sorts of things that have happened. Oral work is given until pupils tell with fluency a few sentences about a subject the teacher may think will interest the class. It may be an object or an experience.

[This work was demonstrated by three pupils, twelve years of age, from a fifth grade class from the Pennsylvania Institution. The children were born deaf and had been in school six years. To illustrate the different steps, the following type lessons were given. An endeavor will be made to give the actual responses of the children.]

Teacher: "I want you to pretend that you are little children in the third grade. We shall tell about things. Anna, you have a pretty scarf. Tell about it."

Anna: "I have a pretty scarf. I got it for Christmas."

[1]Presented with demonstration classes during the Twenty-Fifth Meeting of the Convention of American Instructors of the Deaf, Columbus, Ohio, June 29 to July 1, 1927.

Teacher: "Viola, your father has a new car. Tell about it."

Viola: "My father has a pretty, new car. It is a Cadillac. He bought it in Atlantic City."

After sufficient drill on "to tell about" in the past, the future is introduced.

Teacher: "Viola told us about her father's car. What will you tell about, Mamie?"

Mamie: "I shall tell about my cat."

Teacher: "Mamie will tell us about her cat."

Mamie: "I have a big black cat at home. His name is Blacky. Sometimes he scratches."

A type lesson on an experience follows:

Teacher: "We told about things we had. Now we shall tell about things we did. Anna, tell about our trip to town."

Anna: "We went to town for a geography lesson. We saw many interesting things."

This leads up to the outline for a letter. The outlines make our letters more interesting and less jumbled. As an example, one of the children wrote the following:

"I shall write a letter to my father. I shall tell him about

1. Our trip to Columbus.
2. This city.
3. The weather."

At this point the children are familiar with "to tell about." They know that they tell about things when they know about them. The next step is "ask about." When pupils *do not know,* they ask. The teacher should drive home that fact and that there is a regular form for framing questions—not making a statement with lifted eyebrows.

A type lesson on this is the following.

Teacher: "Who has a little brother at home?"

Anna: "I have."

Teacher: "We shall ask Anna about her brother."

Mamie: "What is your brother's name?"
Viola: "How old is he?"
Mamie: "Does he go to school?"
etc.

To be sure that the children understand the force of "to tell" and "to ask" a lesson of this type is given:

Teacher: "Who has a cat at home?"
Anna: "I have."
Teacher: "Tell about Anna's cat, Mamie."
Mamie: "I do not know about it."
Teacher: "What will you do?"
Mamie: "I shall ask her about it."
Teacher: "You may all ask about it."
Mamie: "What color is your cat, Anna?"
Anna: "He is black."
Viola: "What is his name?"
Anna: "He has no name."
etc.

We may now add to our letter outline:

I shall ask about
1. My cat.
2. My brother.
etc.

We are very sure at this point that the children understand "to tell about" and "to ask about." The understanding of making statements follows. We introduce this in lessons similar to the one given below:

Teacher: "Mamie, tell Viola who came to see you last Sunday."
Mamie: "My father came to see me last Sunday."
Teacher: "Tell her what he brought you."
Mamie: "He brought me a nice box of candy."

Similar lessons are given using
1. Tell where——.
2. Tell what color——.
3. Tell when——.

4. Tell where —— got.

etc.

This is followed by having the children ask questions. If the foregoing has been consistently and thoroughly worked out, there will be no confusion in the use of the question forms.

Type lesson.

Teacher: "Viola, ask Anna where she got her beads."

Viola: "Anna, where did you get your beads?"

Anna: "I bought them."

Teacher: "Anna, ask Mamie what she will do this summer."

Anna: "What will you do this summer, Mamie?"

Mamie: "I don't know."

All the forms that the children know are given in the same manner. This completes the work done in the third grade.

In the fourth grade the use of "to tell about," "to write about," "to read about," and "to ask about" is continued. Up to this time the children have been making statements and asking questions without knowing the terms "a statement" and "a question." It has been found advisable at this point to teach these terms so that the two forms will not be confused later on. The articulation of these words should be taught several days before giving the lesson in which the children are going to use these terms.

Teacher: "I want you to pretend that you are in the fourth grade now and I shall teach you something new. Tell me something about my pencil."

Mamie: "You have a pretty gold pencil."

Teacher: "What did you do?"

Mamie: "I told you about your pencil."

Teacher: "Yes, you told me about my pencil but I told you that I would teach you something new. I shall tell you another way to say that. *You made a statement about my pencil.* Now tell me what you did."

Mamie: "I made a statement about your pencil."
Teacher: "You know two ways now."
Then came the application.
Teacher: "Mamie, make a statement about my bracelet."
Mamie: "Your bracelet is made of silver."
Teacher: "What did you do?"
Mamie: "I made a statement about your bracelet."
Viola: "May I make a statement about it?"
Teacher: "Yes, you may."
Viola: "It has white stones in it."

The next step is the use of the term "question," taken up in the same way as that of a statement.

Type lesson:
Teacher: "Ask me about my pencil, Viola."
Viola: "Where did you get it?"
Teacher: "I borrowed it. Tell me what you did."
Viola: "I asked you about your pencil."
Teacher: "I shall teach you another way to say that. *You asked me a question about it.* Now tell me what you did."
Viola: "I asked you a question about it."

The difference between a statement and a question is now understood and the pupils are familiar with the terms.

In the next step we are working on the *use* of the term "statement" and in order to do this a new construction must be employed but the children are *not* expected to use it. They are, however, becoming familiar with the new form and it is good preparation for a step that is to come later on.

In the demonstration class, the pupils made statements and were directed in what they were to be about, using certain verbs. The new construction used was "tell—— that." "To have" was the first verb taken.

Teacher: "Anna, tell Viola that she has pretty shoes."
Anna: "Viola, you have pretty shoes."

Teacher: "Viola, tell the people that your father has a large store in New Jersey."

Viola: "My father has a large store in Millville, N. J."

etc.

"To be," to like," "to want" and all other verbs are taken in the same way. Written lessons on this work are very helpful. For busy work or study hour work an entire page is given using "to have," another using "to like," etc.

In taking up the next term "ask" we are again obliged to use a new construction—"ask—if." We do not expect the children to use it but as was stated in "tell——that" they are becoming familiar with the term and it will prepare them for what is to come later.

Type lesson:

1. Ask——if she has a dog.
2. Ask——if she has a cat.
3. Ask——if her father has an auto.

etc.

All the other verbs are taken in the same manner.

We now arrive at the point where commands are given to introduce "tell——to." The teacher gives commands first. The pupils do not know the term "command." The speech of this new word was taught several days before.

Our lessons are of this type:

Teacher: "Nod your head, Viola."

"Did I ask a question?"

Viola: "No."

Teacher: "Did I make a statement?"

Mamie: "No."

Teacher: "I shall tell you what I did. I gave *a command.* Now tell me what I did."

Mamie: "You gave a command."

We make the pupils understand that telling someone to do something is a command. An exercise like the following is given:

Teacher: "Tell Anna to do something, Viola."

Viola: "Shut your eyes, Anna."

Teacher: "You gave a command. What did you do?"

Viola: "I gave a command."

After oral commands can be given with fluency, we write commands.

Teacher: "Write a command using get."

When this point has been reached, the negative form is needed, "tell——not to." Written lessons on all the different forms are given for study hour or busy work.

The purpose of all this preparation is to develop a clear understanding of what a question is, how statements are made and what commands are. To test the ability of the children, a lesson such as the following is given:

Teacher: "I shall talk to you. I shall give commands, make statements and ask questions. I want you to tell me what I did."

"This is a lovely day."

Mamie: "You made a statement."

Teacher: "Can you swim, Viola?"

Viola: "You asked me a question."

Teacher: "Remember to speak nicely."

Anna: "You gave a command."

Teacher: "I want you to ask questions, give commands and make statements. Tell me what you will do."

Anna: "I shall make a statement. 'I like ice cream.' "

Viola: "I shall give a command. 'Change seats with me, Mamie.' "

etc.

Along with all this we cannot overlook punctuation. The terms "a period" and "a question mark" are taught.

This completes the fourth grade work.

Our pupils are now familiar with the difference between questions, commands and statements. They have now reached the place where they are ready to take up the work on changing from the direct to the indirect. We begin by changing the direct command to the indirect. The teacher tells the child to shut her eyes. She at once

recognizes this as a command. When asked to tell what the teacher did, she may answer in two ways, for at this point she knows only two ways. It may be, "You told me to do something" or "You gave me a command." The new way is taught. "I told you to shut your eyes."

"Told——not to——" comes next.

Commands are then given in the negative and affirmative forms and each child in the class should be able to change fluently. He should also at this time be using the indirect form in his original language.

The next in order is "asked——to" and "asked——not to." These are not difficult forms after "told——to" and "told——not to" have been fully developed, for after all it is just a polite command and we can tell the pupils so.

"Told——that" is then introduced. The children have never used this term but it has been used by the teacher in giving commands to them and they are familiar with it. Statements are made to the children:

Teacher: "Mamie, you have pretty shoes. What did I do?"

Mamie: "You told me about my shoes."

Viola: "You made a statement about Mamie's shoes."

Teacher: "I shall tell you another way to say that. I told you that you had pretty shoes. That is fifth grade work." (Attention is called to the change in the verb.)

Each member of the class is called upon to tell what has been told Mamie. Other statements are given. For further application statements are suggested to the children:

Teacher: "I told you that I wanted you to write to me. I want you to make statements like that."

Viola: "My mother told me that she would meet me."

Mamie: "I told my father that I wanted him to come to see me."

It goes without saying that the negative forms come after the affirmative.

The auxiliaries are taught next, beginning with "will"

and "would." The pupils are shown that "will" must be changed to "would" in the indirect. We have found it helpful to build up a table like the following as they are taken up.

tell	told
will	would
shall	should
can	could
may	might

They are taken up one at a time, the affirmative followed by the negative.

Before this outline is worked out, one of the problems is changing the question forms to the indirect but the good foundation that has been laid eliminates any problem. These are some of the forms:

Who——?
What——?
When——?

A lesson is given on this construction and the following responses will show with what facility these children make the change. Since the "told——that" construction has already been introduced, this exercise does double duty.

Teacher: "Where did you get your beads, Mamie?"
Mamie: "Beatrice gave them to me."
Teacher: "What did I do?"

Viola: "You asked Mamie where she got her beads and she told you that Beatrice gave them to her." (A great many others were given.)

We now come to "ask——if." Although the children have never used this form in the indirect, they became familiar with it in the commands in the beginning work. It has been made very clear to them that "ask——if" means "Have——?" "Has——?" "Are——?" "Did—?" etc. Then, when it comes time to change it about and the teacher is using these forms when speaking to the

children, the change is made without knowing that they are really doing something quite new.

A lesson of this type is given:

Teacher: "Have you a bathing suit?"

Viola: "Yes, I have."

Teacher: "What did I ask Viola?"

Anna: "You asked Viola if she had a bathing suit."

All the question forms may be given. It is as easy for them to change one as another.

All the forms required have now been covered. At this point questions are asked, commands given and statements made and the children, having had the necessary amount of drill, are so familiar with every form that they recognize the one given and make the necessary change with ease.

Combining the different forms follows "tell——that" and "ask——if."

A lesson like the following is given:

Teacher: "Viola, tell Mamie that you are going to Atlantic City this summer, and ask her where she is going."

Viola: "Mamie, I am going to Atlantic City this summer. Where are you going?"

Mamie: "I do not know."

Teacher: "Tell me what Viola did."

Anna: "Viola told Mamie that she was going to Atlantic City this summer and asked her where she was going."

Original statements of this kind are called for. One pupil volunteered the following:

"A woman met me on the campus. She asked me where I lived and I told her that I lived in Philadelphia. She told me that she had never been there."

Special attention is given to

"asked——if" and "told——that he did."

"asked——if" and "told——that he did not."

"asked——if" and "told——that he did not remember."

etc.

At this time the indirect form is being used in all original language and everyday conversation. We are ready then to introduce the declarative form. This brings in the direct quotation and necessitates the use of quotation marks and the verb "to say." Up to this time the children have seen the quotation marks only in books. They do not know what they are and have never attempted using them. As they have not formed the habit of using them incorrectly, it is not a difficult matter to teach them the right way.

The verb "to say" is taught.

Then a child stands before the slate and is told to say something. The exact words are written on the slate and little marks put around them. The term "quotation marks" is then taught. Everyone else in the class wants to say something then and before we know it, the troublesome quotation marks are a game to us. The terms "direct" and "indirect" are taught at this time and our direct quotations are changed to the indirect. The children are told that people sometimes use direct quotations in stories but they do not use them very much in news, journals, etc. If the direct quotation has been taught first, it would undoubtedly be used to excess and the old trouble of having all original language filled with it would exist. We are relieved of that trouble by training the children to think in the "indirect."

Time phrases come next.

When there is a definite time phrase expressed at the beginning of an exercise, the time phrase that is used in the quotation is changed, e.g.,

One morning Miss Burns said to her class, "We shall have a party to-day."

One morning Miss Burns told her class that they would have a party that day.

When there is no definite time phrase expressed at the beginning, the time phrase that is in the quotation is used.

When time phrases in the direct and indirect quotations are to be taught, the following device has been found helpful.

An interesting item of news is written on the slate for the children to read when they come in. It remains there several days, e. g.

To-day is Frank's birthday. He will have a party this afternoon.

Later on in the week the pupils read it and see for themselves that the time phrase must be changed, e. g., Last Monday was Frank's birthday. He had a party that afternoon.

Miss Willoughby's book is now put into the hands of the children and lessons for practice in changing the various forms are assigned. Imaginary conversations follow. We make up conversations that would likely occur in the home, in a store, at a party or on the street. We let the children play teacher. It is another drill in the form of a game.

The test of all this work is the application to original language. For that purpose the children are told to choose what they wish to write. One writes an original story from a picture she had never seen and the others write letters. Always the emphasis is upon original work.

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OUTLINE FOR PRONOUN WORK[1]

As an introduction to this outline, it would be best to relate the story Miss Rachel E. Dawes, principal of the primary and intermediate grades in the Western Pennsylvania School, gives as the reason for planning this work. A pupil announced one day that Tom and Mary went to Reading. When asked how he knew, he replied, "I saw them in the *Mt. Airy World.*" When Miss Dawes expressed doubt as to this information, the boy proceeded to prove his point by writing on the slate, "Tom and Mary went to Reading. I saw them in the *Mt. Airy World.*" He then drew a dotted line from "Tom and Mary" to "them."

Miss Dawes says that in thinking this over she became convinced that the difficulty with pronouns lay in the fact that the children had been thinking of pronouns as referring to the *names* rather than the person or thing for which they really stood. She then proceeded to work out the following exercise which we have found, when properly presented and carefully practised, to be an absolute clearing up of the problem.

In teaching the pronoun work we use, as in all our teaching of new language principles, the following steps:

Step 1, Speech-reading

Step 2, Speech by pupil

Step 3, Labeling

Step 4, Commands

Step 5, Action work

Step 6, Testing

The preliminary step for the teacher is her grouping of the pronouns as shown here:

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[1]Presented in substance with demonstration classes during the Twenty-Fifth Meeting of the Convention of American Instructors of the Deaf, Columbus, Ohio, June 29 to July 1, 1927.

1	3 & 5	1, 3, & 5	1	3 & 5	1, 3, & 5
I	me	my——	they	them	their——
You	you	your——	we	us	our——
He	him	his——	you	you	your——
She	her	her——			
It	it	its——			

The numbers stand for the position of the pronouns in the "five-slate" work. This outline should be kept where the teacher can refer to it easily and check up on her progress. The steps should be proceeded with in somewhat the following manner:

Emphasizing the Use and Meaning of "Another."—Let the teacher call on the pupils thus: "Mary, show me a boy. Show me *another* boy. Show me *another* boy," etc. This should be kept up until the child (or another, if this child fails to do so) goes out of the room and brings in another boy. The teacher should *not* help the children with this. They should be made to think it out for themselves; it will then be far more valuable to them. After the class has had something of this kind, "Show me a girl. Show me *another* girl," etc., until the teacher is certain that each child feels the force of "another," it is ready for

Formal Drill on Pronouns—Step 1, Speech.—The teacher should say, "Mary show me Mike, Ella, Lloyd. Mike, show me Ella, Lloyd, *I.*" It is to be noted that there is no special help for the introduction of "I." It is just thrown at the pupils and when the little children (for it must be remembered this is second year work) hesitate, as they will, the teacher simply points to herself to show them the application of "I." This procedure should be drilled until every member of the class points unhesitatingly to the teacher when she says "I." In the teaching of "I," it is better to take up "you" almost at the same time (to emphasize sooner the difference in the meaning.) So before going on with the other steps

as outlined above, the class should take the same speech-reading drill with "you" as for "I," the teacher pointing to the child if he hesitates, as was done for "I."

The class is now ready for Step 2, Speech. The speech work or pronunciation of "I" and "you" will have been prepared in the formal articulation periods (in our school) by syllable drills, "a(r)ee" and "eeoo." The formal use in this pronoun drill will be obtained from the pupils through playing teacher. This is a simple device which the children enjoy, and it is a splendid way to get drill without monotony. The teacher momentarily retires to the background by saying, "Ella, will you play teacher?" It will be found, if the above outline is followed, that the pupils then go through the drill very much as the teacher herself did (even imitating her manner in many cases). Each child should take turn playing teacher. This affords much pleasant practice. If the children do not use "I" and "you" of their own accord, they do not understand it, and it will be necessary to go back for further drill. When each child can play teacher unhesitatingly and use "I" and "you" easily, then the class is ready for the next step.

When this work was demonstrated before the members of the convention, one boy hesitated when I said, "You." So I said it over and over again, of course, having him reply "I" each time. Then suddenly, when he probably thought that I was never going to say anything else, I said, "I." If the teacher can interchange the "I" and "you" quickly, throwing either of them at the pupil, and get the correct response instantly, she may be sure the pupil has the meaning pretty well in mind.

The next step is Labeling. Here, for the first time the pupil sees "I" and "you" in the written form, the teacher may have to say "I" and "you" to show what the written form stands for, as the pupil is probably thinking of the words as "a(r)ee" and "eeoo." On the slate should be written, "Mary, Lloyd, Mike, I, Ella, I, you, you, Mary,

I, and I." Each pupil should come to the slate for some such exercise, to point out the person named, saying "you" when the teacher writes "I," and saying "I" when she writes "you." After each pupil has gone through this step, perhaps some time later, a pupil may play teacher and do the writing.

The work is now prepared for the next step, Commands. All the commands with which the children are familiar should be used, such as "Spin a top. Spin a penny. Bounce a ball," etc. The children should tell about what they did, thus giving them the opportunity to use "I." They should then tell what the other children did, and lastly they should talk to the performer of the action, giving the opportunity for the use of "you." Care should be taken not to give the child several commands in succession unless he is to be the only speaker. Otherwise, this would necessitate the use of the third person pronoun which has not yet been given.

Action work, in the outline, is the next step, but it is not so practical in the teaching of the personal pronoun and so is not stressed at this point.

The "testing" of this teaching comes when the children tell voluntarily about themselves or the teacher, and use "I" and "you." Until they do this, the teaching of pronouns has not been completed, and the drill work should be continued.

This outline for the teaching of "I" and "you" has been given in such detailed form with the hope of making it clear, and to show that the same steps will apply to the teaching of all other pronouns. As will be noted in the original outline, "he," "she," and "it" are the next pronouns to take up. As soon as one pronoun has been taught, it should be used steadily, the old ones being reviewed at the same time. For instance: "Show me Mary, Lloyd, Mike, he, he, I, Ella, you," etc.

Some comment should be made on the pronoun "it." When possible some animal should be brought into the

schoolroom or the class should go outdoors to see one. This gives a splendid opportunity for the use of "it." Thus, "The cat ran. *It* played with a string. *It* scratched Mary. *It* washed *its* face."

It might be well here to speak of the possessive pronouns. The teacher should list possessions of everyone in the room. Examples: "Tom's tie. Mary's dress. Ella's ring. My hat. My pen." If necessary, labels should be pinned on the things possessed. One of our teachers did this, and on arriving home one evening discovered that she had ridden all the way from school with "My hat" pinned to the article in question. Pictures can also be cut out or drawn and labeled, "Mary, Tom, a dog," etc. Then the pupils may list their possessions. Example:

Mary	Tom	a dog
her hat	his blouse	its tail
her coat	his baseball bat	its ears
her muff	his dog	its hair
her sled	his mit	its legs

Care should be taken to avoid elliptical sentences like this: "Mary kissed———mother," when the pupil is expected to write *her* mother. How is it known that it was Mary's mother? Perhaps it was her little friend's mother. However, elliptical sentences such as the following may prove helpful: "Mary———her mother. Tom———his dog," etc.

The last grouping of pronouns in the outline was made so that the pupils could talk to the class, to the performers of the action and to each other.

One caution should be given. It will be found that there is less occasion for the use of the plural "you," for "we" and "our" than for any other pronoun. Therefore, *drill* and situations should be provided to emphasize these. In teaching the plural "you," two children should be used first, then perhaps one of the same two, and another one or two. Finally, the entire class. Our pupils are likely to

think that "we" means only the class rather than *themselves* and someone else or many others. When the real meaning is understood, the pupils will not be saying, "The boys went to the movies," when they mean "we went to the movies."

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SARAH FULLER

It was in February, 1891, that a vision of benevolence and benignity suddenly appeared in the doorway of the one-room primary school in Dorchester where I was teaching eighteen children of the first three grades. The vision smiled graciously and said she would like to visit—which she did, for an hour.

It was a little difficult, teaching while she looked on, for the children couldn't keep their eyes away from her, and every time they looked, she smiled, and they smiled.

At the end of an hour the children were dismissed and she waited to talk to me. She told me she was Miss Fuller of the Horace Mann, and that she wanted me to come and teach the deaf. I went. Everybody in Boston knew who Miss Fuller was, and most folk did what she said.

I hated it the first four months. Every morning I made up my mind to tell Miss Fuller I couldn't stay, and every day she came into my room and spoke so appreciatively of what I was trying to do, and ignored so blissfully my awful blunders that I decided to stay another day.

By the time I returned in the autumn the call of the work itself had "got" me, and I have never seen a day since when I would have changed back to the teaching of the hearing.

I taught under Miss Fuller until she retired in 1910, nineteen years and four months, and I have known her intimately ever since.

Miss Fuller possessed a lovely gracious personality, which endeared her to strangers at first sight and made them friends for life. I remember, at the early Association meetings, how the young teachers from all over the country would flock around her, just for a word or a smile; and in those old days when hard things were sometimes said about oralism, its most emphatic berater always went out of his way to assure his hearers or his readers, that he didn't mean to imply any criticism of the gentle ladies of the oral schools of the East.

Her beautiful grace of manner eased many a heartache when sorrowing parents, benumbed by a doctor's verdict of incurable deafness, sought aid and advice from her. "The light of her countenance fell like a benediction upon me," one mother said. "I felt that even my boy's deafness couldn't be all bad, if it had raised up a friend like Miss Fuller for us."

The wondrous loving-kindness of countenance, which endeared her to all the world, was but the outward sign of that inward strength of character and intellect which would have made her one of the great figures of her age had she been placed in a broader field. Fortunately for the deaf her fate led her into our narrower world, where she was so much needed.

Miss Fuller was a true descendant of a long line of pioneers. Always she had the forward look. Always she saw the need for new activities for the children, and always she worked to secure them.

She founded one of the first parents' associations in Boston, in August, 1895. She advocated public playgrounds when they seemed like an impossible dream. She obtained manual training for the Horace Mann in the very beginning of the movement in 1890, raising the money among friends. Then she put in printing in 1892, again by means of privately raised funds. She realized the need of special art teaching for the deaf, to add to their power of expression, and the Horace Mann had a

departmental art teacher, long before any other elementary school in Boston.

Departmental teaching in elementary schools, so common-place to-day, was worked out and put into practice by Miss Fuller in 1890.

The merest suggestion of something new at a convention was enough to win study and investigation and trial. If the thing didn't work, she let it go. Sometimes she was accused of being too eager for the new and untried, but when we see how many of her dreams are the accomplished facts of to-day, we know that she was simply looking into the future with the clear vision of the seer; that she "saw the vision of the world, and all the wonders that would be."

She had a rare ability for making friends. Everyone who met her fell beneath her spell. For her, time was not, and the poorest and most illiterate could claim her thought and attention while the rest of us waited—not always patiently—for our chance to speak. We grumbled and chafed, but when she came out and smiled, never was there one of us obdurate enough to show impatience.

Under her, the Horace Mann became what it has since always remained—a clearing house for all interests of the deaf. Parents journeyed from afar to ask Miss Fuller's advice. Letters came from foreign countries begging "Honored madame, whose fame has reached us here" to give her help to new schools springing up.

To this day middle-aged and elderly deaf men and women come to tell us how a letter or an interview determined the trend of their education, and invariably they tell their story in speech, and good speech.

I suppose her abiding faith in the ability of the deaf to acquire speech was largely based on her own superlative ability to *teach* speech. By the time I knew her, in 1891, executive duties no longer permitted her to teach regularly, but she still delighted to do it; and we always knew that if we could only catch her, our worst difficulties would fade away. Dr. Alexander Melville Bell once char-

acterized her as the best speech teacher he had ever known.

Long before the present fine speech improvement classes in Boston were established, afternoon classes for stammerers were held at the expense of the state. Miss Fuller, Mrs. Alice Porter, and Mrs. Sarah Jordan Monro taught these classes.

As recently as last winter, a manly efficient-sounding voice called up to know whether we still had classes in speech correction at the Horace Mann School. The speaker said that as a boy he had stammered so that life was torture to him, and Miss Fuller had cured him. "I owe my whole success in life to her" the voice said, with emotion. I asked what business he was in and he said, with a laugh in his voice, "I am a high-powered salesman, so you can imagine that my speech must be all right." It is pleasant to know that Miss Fuller knew of this incident, and rejoiced in it.

The child of pre-school age occupies the center of the educational stage just at present. Miss Fuller put his deaf brother of like age into the limelight in 1889, when she advocated treating deaf babies like hearing babies, and beginning their education in the family circle, where normal infants are first taught. All the arguments which the pre-school age advocates put forward now, I heard her use in the early nineties. (I didn't altogether agree then, and I don't now, but that is of no consequence.)

When her ninetieth birthday was approaching, we wrote to as many past pupils as we could reach, inviting them to share in a gift for her pleasure. The response was immediate and generous. Letters came from remote and unexpected places—and in every one there was something about how kind Miss Fuller had always been and how gentle; and how much they had always loved her beautiful smile.

On her birthday, February 15, 1926, a day of rain falling on great depth of snow, the house bloomed like a summer garden with the flowers from far and near, and Miss Fuller showed us proudly the sheaves of telegrams

and letters from schools for the deaf all over our country. Miss Mary McCowen had lovingly notified all the day-schools of the coming anniversary, and most nobly did they respond, adding to the congratulations from the many personal friends in the residential schools.

The Horace Mann School had no regular alumni association until recently; but for many years there was an association of young men, formed as an insurance society, which constituted an informal body of alumni, known as the Horace Mann Benevolent Association. Miss Fuller was its honorary president, and to it and its interests she gave her time and thought nearly to the end. As long as strength permitted she kept open house for her "boys" one Sunday in each month. Newton Lower Falls is not an easy place to reach; but rain or shine, hot or cold, snow or ice, there they were to be found on *the* Sunday. They told her their joys and their sorrows, they propounded their business problems; they confessed their weaknesses, and received strength from her unswerving rectitude. Only our Heavenly Father knows what those Sunday afternoons meant to those boys.

A long beautiful life, nobly lived unto the end.

Death came and found her ready to go, at peace with all the world. The bell in old St. Mary's tolled as the boys paced beside her up the country road to her beloved church where we waited. There was no music, because she had said, "My children cannot hear it."

The assisting clergyman was one of her boys; and when they carried her out to the beautiful old burying-ground to lay her among her kin, there, among the trees and birds and flowers, he read the committal service in a voice that all could hear and understand. A fitting crown to her life-work when, in the speech she had given him, her pupil commended her soul to God.

MABEL ELLERY ADAMS,
Principal of the Horace Mann School,
Boston, Mass.

AN OUTLINE OF STUDY FOR INTERMEDIATE AND ADVANCED GRADES—V[1]

NINTH AND TENTH GRADES

General Program

45 minutes—Current Events.
50 minutes—Composition.
45 minutes—Reading.
40 minutes—Grammar.
40 minutes—Geography or Physics.
40 minutes—Arithmetic or Algebra.

Current Events.—Keep the class interested in and posted on important events, including political, such as elections, etc.

In order to ascertain whether the class obtains any mental pictures from headlines, as we do, the teacher should occasionally conduct a recitation as follows:

Take the front page of the morning paper and just show the headlines. Ask the members of the class whether they know what each article is about, and if they do, whether they want to read the details or not.

The headlines taken from the Trenton *Evening Times* of September 19, 1927, would develop the following lesson.

"Aviators Start Second Leg of Cross-Country Dash"

"Ten Fliers Bunched for Lead"

The pupils probably know what this refers to and are probably interested in the account. Determine how many understand meaning of "second leg" and "bunched for lead" without further explanation.

"Eighty-five Face Court as Bootleggers"

Most pupils probably understand this, including the expression "face court," and want to read details.

"Blood Specialists Study Baby Mix-Up"

Nobody probably can picture the nature of this news item, but the expression "baby mix-up" may arouse sufficient curiosity to have class ask what a blood specialist is, and what it is all about.

[1]Continued from the *Annals* for November, 1926 (vol. lxxi, no. 5), pp. 419-430.

"Legion Cheered as Paris Views Men on Parade"

If class has heard about the Legion before, this heading probably suggests the nature of the news item. The majority are probably satisfied with the heading and do not care to read details.

"Kuser Opposed to Amendments"

Nobody interested; consequently, pass it over.

"Bitten by Stray Dog"

Everybody interested, although most do not know what "stray" means. All wish to read the item.

"Murder Widow Faces Arrest; Decision To-day"

Since everybody has been reading this sensational case, the teacher may as well discuss it very briefly with the class.

"Hanna Is Under $10,000 Bail as Bank Swindler"

"Pasto, Sexton Will Air Fight at Court Trial"

Since these two items are illustrated by photos, class is probably interested. An opportunity to teach "bail."

"Ex-Lawrenceville Teacher Drowned—Boat, Empty, Found on Lake Half Hour After He Left Shore"

Everybody probably can picture this item, and wants to read details.

"Rubber Signposts For Wild Motorists"

This heading would be an interesting test to find out how many pictures language forms immediately without any further elaboration by teacher.

"Runyon and Smith in Clash at Session Called in Attempt to Break State Board's Deadlock"

Nobody knows what this is about, and nobody is interested; consequently, pass it over.

"Search for Jensen Proves Fruitless"

This probably does not strike pupils as an interesting item, but after they have discovered that Jensen is an aviator, they probably want to know what "fruitless" means, and then want to read the details.

Composition.—There should be a definite written composition exercise every day.

Continue exercises for composition as given for Seventh and Eighth Grades, especially notes, letters, and subjects requiring imaginative exercises.

Jones' Course in English, Book II, offers good stories for reproduction.

The following is an example of how the paraphrasing of a little poem may be treated:

OPPORTUNITY

This I beheld, or dreamed it in a dream:—
There spread a cloud of dust along a plain;
And underneath the cloud, or in it, raged
A furious battle, and men yelled, and swords
Shocked upon swords and shields. A prince's banner
Wavered, then staggered backward, hemmed by foes.
A craven hung along the battle's edge,
And thought, "Had I a sword of keener steel—
That blue blade that the king's son bears,—but this
Blunt thing!" he snapped and flung it from his hand,
And lowering crept away and fled the field.
Then came the king's son, wounded, sore bestead
And weaponless, and saw the broken sword,
Hilt-buried in the dry and trodden sand,
And ran and snatched it, and with battle-shout
Lifted afresh he hewed his enemy down,
And saved a great cause that heroic day.

—*Edward Roland Sill.*

Outline:

1. The Battle
2. The Coward
3. The King's son

A Paraphrase:

Opportunity
(A Dream)

A cloud of dust was coming along the plain, and a fierce battle was being fought behind it. The shouting of men and the clattering of swords and shields could be heard. Then the Royal Standard could be seen wavering and falling backward, and the enemy was surrounding it.

A coward who stood on the outside edge of the battlefield said to himself that if he had only a sharp sword like the king's son's sword, he would fight and drive back the enemy. The sword that he held in his hand, however, he said, was dull and useless. So he broke it and threw it from him. Then he stole away from the battlefield.

The king's son came. He was wounded and without any weapon. As soon as he saw the sword, buried in the sand up to the handle, he ran to it and pulled it out. Gaining fresh courage, he led his men against the enemy, and although his sword was broken, he succeeded in defeating the enemy, and so won the battle.

Telegrams.—The following introduction may be given:

We telegraph when we want to send a message quickly. A telegram is usually delivered within an hour or two after it is sent, no matter what the distance is.

The cost of a telegram depends upon the distance, and the length of the telegram. There is usually a minimum charge for the first ten words, and then an extra charge for the words over ten. We, therefore, try not to make a telegram longer than ten words, unless we have to.

The address and the signature do not count; only the words in the message are counted. We put in just enough words to make clear all we want to say. We do not say, "Dear Sir," or use any other salutation, because each word costs money. We usually leave out "please" and "the" and other small words that do not help to make our meaning clear.

Exercises:

1. Send a telegram to your father, not exceeding ten words, telling him that you are coming home, and asking him to meet you at the station.
2. You are in a railroad accident, but not hurt. Telegraph home, so your people will not worry when they read about the accident in the newspaper.
3. Suppose you are going to an N. A. D. Convention in Chicago for two days. Telegraph to a hotel there making reservation for a room.

Suggestion: Use telegraph blanks.

Definitions.—Teach definitions of things and ideas with which the pupils are acquainted; e. g., dictionary, hospital radiator, kodak, pair of compasses, check, greenhouse, dynamo, conductor, etc.

The aim is to teach the children to express first the classification to which the article belongs, and then the particular limitation.

It is a book which ————.
a building where ————.
a machine that makes ————.
a man who ————.
etc.

Do not ask the pupils to memorize any of these definitions. When you give an examination, ask them to define some things they have never defined before but that belong to the same classifications they have had before. If, for instance, they have defined the above articles in class, the examination should consist of asking them to define the Bible, a garage, a linotype, an engineer, etc.

Proverbs and Fables.—Suppose you want to teach "A stitch in time saves nine." First give an illustration very close to the language of the proverb; e. g., tell a story about two people who had a little hole in their sleeves. One attended to it right away; the other let it go. Then tell a story changing the metaphor; e. g., tell a story about a leaky roof, etc. Then ask children to tell you a story that will illustrate the proverb.

Occasionally group proverbs of similar meanings together.

Treat fables in the same way. First discover the moral of the fable, and then tell and ask for stories illustrating the moral.

Giving Directions.—Give exercises as follows:

Direct me to the post office.
Tell how a certain kind of dessert is made.
Tell how to set a table.
Tell how to play 500.

Variety of Expression.—

Before going to school, I read a chapter in my new book.
Before I went to school, I read a chapter in my new book.
I did not go to school till I had read a chapter in my new book.

He was sure of seeing you.
He was certain that he would see you.
There was no doubt in his mind that he would see you.

Two automobiles collided. One man was killed and two seriously injured.
There was a collision between two automobiles with the result that one man was killed and two seriously injured.
The collision of two automobiles caused (resulted in) the death of one man and the serious injury of two.

Drillwork.—See notes on previous grades, especially on "when," and "if" constructions, the past perfect tense and participial constructions. The Miscellaneous Drills mentioned in the Seventh and Eighth Grades may suggest others.

Grammar.—Complete Longman's "Briefer Grammar."

The object of analysis is mainly to teach the understanding of relationships of phrases and clauses. Minute parsing is valueless, and is not asked for any more in examinations. Articles and adjectives should not be

separated from their nouns in analysis. Instead of diagrams, the form given by the principal and printed on slips and to be pasted in the grammar textbook opposite the diagrams is to be used in preference to the diagrams.

The following are the main points of grammar with which the pupils should be familiar. Definitions are not so important as the ability to recognize types and relationships.

Nouns: Proper, common, collective, abstract, verbal.
Case and number. Gender is unimportant.

Verbs: Transitive and intransitive verbs.
Tenses. Voices.
(Regular or irregular is unimportant.)

Pronouns: Personal (nominative, objective and possessive cases).
Relative—who, which, that. Cases. Antecedent.
Interrogative.
Reflexive.
Demonstrative.

Adjectives: Descriptive, limiting.
Comparison of adjectives.

Adverbs: Modifying (a) verbs, (b) adjectives, (c) other adverbs.
Difference between adverbs and adverbial phrases.

Prepositions: Difference between prepositions and adverbs.
(He walked *along* the road. Come *along*.)
Object of the preposition.
Prepositional phrases: Adjective phrase, modifying a noun; adverbial phrase modifying a verb.

Conjunctions: Co-ordinate, subordinate, and correlative.

Phrases and Clauses: Difference. Changing one into the other.

Sentences: Simple, complex, compound, compound-complex.

Clauses: Noun clauses, Adjective clauses (relative), Adverbial clauses of time, place, cause, condition, concession, and manner.

Participial phrases: See Participial Constructions under Seventh and Eighth Grades.

The Infinitive:

1. Used as a *noun*: *To lie* is sinful.
   I prefer *to walk*.
2. Used as an *adjective*: time *to go*.
   our duty *to help*.
3. Used after *what, where, when, how, how often, how much, how many,* e. g.
   I told him *what to do*.
   He did not know *how to solve* the problem.
4. After *as, too, enough,* e. g.
   Will you be so kind *as to lend* me your knife?
   James is *too* lazy *to study*.
   Mary is old *enough to know* better.
5. Infinitive of purpose.

Appositions.

Reading.—Complete readings assigned for previous grades, but not finished.

Then take up Winston Readers, 6th and 7th Readers.
Silent Readers, 6th and 7th Readers.
Young American Readers—Community Interests.
"Broad Stripes and Bright Stars," by Bailey.
(mainly as a history reader)

Those that intend taking the college examinations the following year, should do *part* of the required reading this year.

History.—Complete MacMaster's, if this has not already been done in the Eighth Grade.

The History period in the Ninth Grade should be given over to a general review of American history. The best way is to use J. L. Hammett Co.'s Calendar as the basis for your outline. Very many days each month are marked as anniversaries of historical events, and these may form the subjects for your lessons. There should be a number of different textbooks on the shelf in which the pupils may look up details of the event, and after the teacher has suggested the main points, the class may

sometimes write a composition on it. A separate notebook should be kept so that both the pupils and the teacher have a definite record of lessons taught.

In the Tenth Grade, Montgomery's English History is taken up with those who intend going to Gallaudet College. This will have to be condensed and simplified by the teacher.

With the others, take biographies of great and well-known men and events in the history of the world, such as, Alexander the Great, Hannibal, Julius Caesar, Nero, the Crusades, Henry VIII, Louis XIV, Peter the Great, Frederick the Great, the French Revolution, Napoleon, Queen Victoria, the Crimean War, the Franco-Prussian War. These subjects may be found in various readers and history books.

Geography.—General review, largely in connection with Current Events.

Use "Essentials in Geography," Brigham and McFarlane, Second Book, as reference book.

Use Carpenter's and other Geographical Readers for Supplementary Reading.

Arithmetic and Algebra.—Ninth Grade—Arithmetic.

Tenth Grade—Arithmetic, 2 days a week. Algebra, 3 days a week. (Use Milne's "Elements of Algebra.")

ELEVENTH GRADE
(HIGH CLASS OR COLLEGE PREPARATORY CLASS)
General Program
Current Events
Composition
Grammar
Reading
Algebra
Arithmetic

The catalogue of Gallaudet College gives the following suggestions:

Composition.—
Capitalization and punctuation.
The pupil should be able to write a clear, concise sentence, correct in capitalization, in punctuation, and in spelling. The use of the short sentence should be emphasized. The pupil should be taught to place his modifiers as near as possible to the words they modify.

The pupil should be able to write questions upon a paragraph or a theme. He should be taught to write and to answer questions that cannot be answered by "Yes" or "No."

The pupil should know the meaning and the use of the more common idioms. (See "English Phrases and Idioms," J. L. Smith.)

The pupil should be required to commit passages to memory and to reproduce them in writing, paying attention to punctuation and capitalization.

The pupil should be able to expand a simple sentence to a complex sentence, to contract a complex sentence to a simple sentence, to expand a word modifier to a phrase modifier, to expand a word modifier to a clause modifier.

The pupil should be able to write any of the following:

Friendly letters, notes of invitations, simple business letters, applications for a position, advertisements, answers to advertisements, lost and found notices, telegrams.

The pupil should be able to write a paragraph of several sentences, following the principles of unity, coherence, and emphasis.

The pupil should be able to state the main thought in a paragraph.

The pupil should be able to develop a paragraph, the topic sentence being given.

The pupil should be able to write a theme of several paragraphs following the principles of unity, coherence, and emphasis.

The pupil should be able to write a story; a brief description of a person, a place, or thing; an explanation.

Grammar.—

Parts of Speech.

Analysis of sentences of reasonable difficulty into subject, verb, complement, and modifying elements.

Recognition of simple and compound subjects, simple and compound predicates, simple and compound complements.

Recognition of word modifiers, phrase modifiers, clause modifiers.

Recognition of simple sentences, compound sentences, complex sentences, compound-complex sentences.

Construction of sentences according to stated specifications involving above points.

Reading.—Required reading for the year.

Algebra.—Wentworth's "New School Algebra" (pp. 1-261).

Arithmetic.—Stress is laid on the rapid, accurate, and neat solution of arithmetical examples, especially those coming under the four fundamental rules—analysis, decimal and common fractions, square root, percentage and simple proportion. Too much time spent on compound numbers, interest, discount, exchange, averages, cube root, and compound proportion is to be avoided. Arithmetic should teach students to cipher, not to memorize rules or prove theorems; but in the case of the deaf it is very important to cultivate the ability to construe the language of arithmetical problems. The examination questions will be made practical rather than technical or abstruse.

TOBIAS BRILL,
Principal in the New Jersey School,
Trenton, N. J.

SCHOOL ITEMS

Horace Mann School.—Ground has been broken in Roxbury for the new Horace Mann building. The contract is for $432,000. There are to be 22 schoolrooms, a gymnasium, drawing room, rhythm room with sensitive floor, an auditorium, clinic, and all modern equipment. The lot is that of the historic old Roxbury Latin School, and allows space for out-of-door sports.

It is hoped the building will be ready for occupancy in the fall of 1928.

Two new teachers have been appointed to the staff of the school: Miss Katherine Shiels and Miss Varsenig Boyajian.

Missouri School.—During the vacation extensive repairs were made on the buildings and adequate fire protection has been provided by the erection of fire escapes and iron stairways.

The following teachers have resigned: Miss Anna V. Craig, to stay at home during the coming year; Miss Louise Berry and Miss Kathleen Simmons, to be married; and Miss Dorothy Mitchell to teach in the Arizona School. Mrs. Lena G. Standefer has been granted leave of absence until January 1, 1928, on account of illness. Miss Virginia Rosser, from the Institution for Improved Instruction, Miss Ruth Snyder, an experienced public school teacher trained at Central Institute, Miss Edith Barnette from the New Mexico School, Miss Clara Ward from the Central Institute and Mr. Robert D. Morrow, a normal fellow from Gallaudet College, have been appointed teachers, while Mrs. R. H. Pearce, trained at the North Carolina School, will substitute for Mrs. Standefer. In addition to his duties as teacher, Mr. Morrow will act as field agent for the school. Miss Helen W. Pence has been made supervising teacher of the special classes and has been placed in charge of the older girls.

MISCELLANEOUS

Revision of Miss Beattie's "First Lessons in Geography."—Miss Grace M. Beattie, of the staff of the Colorado School, has just issued a revision of her "First Lessons in Geography." This work has found extensive use in schools for the deaf and the new edition promises even more continued service. It is written especially for the needs of deaf children, being admirably suited to the language situation in a school for the deaf. As its title indicates, it is chiefly an introductory work, the endeavor being to treat of those phases of life and nature that will arouse a true interest in the study of geography. To this end, details of the home environment are first discussed, the ordinary affairs of the child's daily experiences serving for material.

The new book, containing 115 pages, is most attractively illustrated with pictures, drawings and maps, and the general review questions are a valuable feature. It is published at the Ohio State School for the Deaf, Columbus, Ohio; the printing is excellently done, and the binding and cover are sturdy enough to stand wear. The price is one dollar.

The Practical Nature of the Printing Course.—As printing is one of the predominant trades in the vocational curriculum of schools for the deaf, an inquiry into the practical nature of the course offered becomes a matter of concern to the authorities of such schools. A straightforward dicussion of the subject was presented in the *Annals* for May of this year by Mr. Frank B. Smith, instructor of printing at Gallaudet College, in an article on "The Printing Industry and the School for the Deaf." A further stimulating treatment of the same subject appears in the Open Forum section of *The Inland Printer* for August, 1927, in the following letter to the editor of that journal, in answer to the query: "What's the Matter With Our Trade Schools?"

New York City.

If the present-day vocational teachers were asked the above question, the chances are nine out of ten would reply, "Nothing." But something does ail our trade schools, and that something is the reason why so many people frown on vocational schools and are reticent about hiring apprentices turned out by them.

The average instructor presumes that no learner is a thorough apprentice until he has been taught the entire trade from beginning to end. In teaching the trade of printing, the instructors suppose that by teaching all the boys all the various operations of the trade they are making good printers. Nothing is farther from the truth. It is this mistaken notion, this rut of teaching a trade, that has so undermined public faith in trade schools.

A printing school shop should be conducted along the same lines as a regular printing plant, with this exception: In the former instruction should be the main motive, whereas in the latter production is desired and expected. A well-balanced plant employs specialists who labor only at a specific part of the trade. Compositors set type, feeders run off the jobs, pressmen make ready, typographers lay out the jobs, estimators estimate, stonemen lock up, etc. Why can't the same principles be employed in a school shop?

Of course, many pedagogues will shriek in horror at this suggestion. They will brand me loon. But am I mad? Let us see. The average vocational course is two years long. The ordinary school year runs about forty weeks. There are five days in each week and four school hours (time spent in learning a trade) in each day. There are, therefore, about 1,500 school hours. In those eighty weeks the following divisions are taught (touched upon would be the better term): Layout of job, composition, proving and correcting, makeup, imposition, lockup, makeready, feeding, care of press and accessories, distribution, folding and finishing, paper handling.

In other words, there are about twelve distinct elementary divisions which are compulsorily thrust upon the students. There are other branches, such as linotyping, ink mixing, estimating, etc., which are often broached. However, let us consider only the above enumerated twelve. When the 1,500 school hours are divided by the twelve subjects, about 130 hours per subject are allowed. In terms of working days, the beginner spends about seventeen full days in learning any one division of the trade. And the school authorities expect the raw youngsters to assimilate all this knowledge (nine-twelfths of which they will never put in practice in future jobs) in such a ridiculously short time. Our school heads expect the business world to believe that their graduates are full-fledged tradesmen. Why, a certain agency advertises to teach only composition in three months time, or in twenty-two full working days.

What is the remedy for this deplorable condition? The answer is, specialization. Some boys are naturally and biologically adapted for composition, others for presswork, some for proofreading, many for imposition, others for feeding, and so on down the list. Do not cram the entire trade down their throats. Let them become proficient in one branch. Being in a school they can visualize just where and how other branches of the trade fit it. Being in an

atmosphere of learning they can not help but absorb the vital and necessary knowledge of the other divisions without detracting any time from the branch they prefer. In this way experienced tradesmen would be sent out into the business world and the pupils would get the most out of their school time.

I am a graduate of a trade school. I have worked with beginners and appreciate their reactions. I am taking a training course for vocational teachers given by the state of New York. I have visited school shops; I have observed and know whereof I write.

William Shmulenson.

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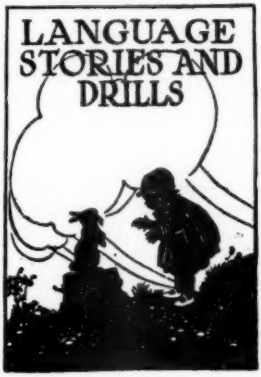

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